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An Address.[1]

By R. H. PULLEINE, M.B., Ch.M. (Sydney), F.C.S.A.,
Retiring President of the South Australian Branch of the British Medical Association.

IN bringing the subject of cryptogenic infections before you, I do so in the belief that it ought to occupy more of our attention than it really does. The pathogenic organisms are the weeds in our garden; they are the main cause of our misery and death and the value of our careers is largely determined by the success of our efforts in recognizing their presence and circumventing their activities.

I do not speak as a pathologist or a bacteriologist, but as one of the rank and file who has to battle daily with bacteria, and in the past not always successfully. My experience has chiefly been from the ophthalmic and otological side and I ask you to bear with me for a little while I relate my impressions of the great unseen world of organisms.

The time is within the memory of some of us when two of the pathogenic class, now brought under control by preventive medicine (I mean the organisms of typhoid fever and diphtheria) were our greatest menace. Others are not so deadly as they were, but there are still some which need all the energy and watchfulness the surgeon can give them.

The Streptococcus.

Let us begin with the streptococcus, our greatest enemy.

Its strength lies in its absolute want of specialization, its ability to grow in aerobic and anaerobic conditions, its universal occurrence in Nature and its power to live on us as a parasite and to attack us when it catches us napping.

Rosenow's[1] view, first enunciated in 1915, is that strains of streptococci isolated and cultivated from infections of specified organs of the body reproduce, when injected into laboratory animals, the characteristic lesions in those same organs. This he calls elective localization. His method is to isolate streptococci from the focus under consideration, in teeth, tonsils, appendix, gall bladder *et cetera*, cultivate them on various media for sixteen to twenty-four hours, centrifuge and make a suspension of the organism. Very varying amounts of this suspension are injected into the veins of rabbits and dogs, giving rise to a bacteræmia, septicæmia or pyæmia with lesions throughout the body. The elective localization is based on a numerical preponderance of lesions in the organ corresponding to the one from which the original strain was isolated.

Rosenow has received much support in America, where his results have been generally accepted and more lately by Wilkie[2] in Edinburgh in his work on the gall bladder.

Frank incredulity, however, is the attitude of some people, although Duncan Gould[3] in the last number of *The British Medical Journal* refers to the brilliant and devastating bacteriological studies of Rosenow. The point is that if this work emanating from the Mayo Foundation is unassailable, the streptococcus is shown in a worse light than ever, if that is possible.

There are, however, several debatable points in Rosenow's work, for instance, the extremely high incidence of appendicitis in rabbits when infected with a streptococcus from human appendicitis. Now the rabbit has no appendix and no explanation is given of what constitutes appendicitis in the rabbit, only the statement that fourteen strains from appendicitis produced lesions in the appendix in 68% of the sixty-eight rabbits injected, whereas only 5% showed similar lesions when injected with streptococci from other sources.

Certainly the streptococci have the credit of being the chief cause of the great group of affections we call rheumatic. The sooner the term "rheumatism" is relegated to the limbo of obsolete things the better, although it trips lightly off the tongue and is, in fact, one of our main smoke screens of ignorance. Sir William Willcox[4] stated as late as last year that diseases under this vague heading were responsible for one-sixth of the days lost in the industrial world.

We know that two main primary focal depôts for the streptococcus are the teeth and the adenoid tissues of the pharynx. Willcox[4] says that in one hundred consecutive rheumatic patients the dental conditions were suggestive in seventy-two. This is a grave statement and shows the matter requires intense investigation.

Looking about for information, I was glad to find a report of the combined meeting of the Sections of Odontology, Electro-Therapeutics and Pathology of the Royal Society of Medicine.[5] The subject was the pulpless tooth. From this it appears that more than 50% of people have pulpless teeth and in 10% of people there may be five or more such. The dental department of the Adelaide Hospital corroborates this as regards our community. Now not all these teeth are dead, but mostly they are dead and infected and in many the infection is walled off only by granulation tissue forming round the apex of the tooth. Such teeth are a potential danger and a cryptogenic latent focus which may at any time become manifest.

The warning note as to diagnosis, however, comes from the radiologist, for Brailsford and Meyrick-Jones during the discussion drew attention to the uncertainty of radiography in diagnosis, in that the radiogram might reveal only slight changes, even when a massive lesion was present. Brailsford holds that one could almost say, especially in acute conditions, that the more attractive the physical signs, the less the radiographic signs. Meyrick-Jones again states that pathological changes seen in radiograms were not produced immediately, but were the result of a long morbid process. Recent infections, even though severe, often showed no signs radiographically.

[1] Delivered at the Annual Meeting of the South Australian Branch of the British Medical Association on June 28, 1928.

Bertwistle[6] in April of this year, writing on "Infections Due to Dead and Septic Teeth," draws attention to the unreliability of radiography as a means of diagnosis.

I am laying stress on tooth infection as I consider it one of the main, if not the main source of cryptogenic infection, a fact first recognized only by Hunter in 1910 and as yet only partially realized.

Now, what other methods have we of detecting dead or infected teeth? Tenderness on closing the jaws or on percussion are recognized and the galvanic current may be used. Given all these, the great majority of practitioners has neither the time nor facilities for such investigations and it must be largely left to the dentist and radiologist.

The ophthalmologist has a special interest in dental infection from the variety and intensity of the eye symptoms it may give rise to, ranging from conjunctivitis and blepharitis to iritis and toxæmic optic neuritis with temporary blindness. As a source, too, of toxæmic disturbance of the labyrinth it is of interest to the neurologist and otologist. In fact, no one in any walk of medicine is free from the unpleasant possibilities conferred on his work by dental infection.

The focal depôt for infection in the nose and throat is largely provided by the tonsils which harbour as guests a number of pathogenic bacteria of low virulence, of which the streptococcus is the most important. The activity of these organisms is apparently held in check only by the ability of the body to produce sufficient antibodies to neutralize them. When, however, conditions, physical or chemical, bring about the negative phase, the adenoid tissue is invaded and local and distant disturbances occur. These distant disturbances, though sometimes acute, are more often chronic affections of the joints or their periarticular coverings due probably more often to toxæmic than direct microbic invasion and responding favourably to the removal of the cryptogenic focus, whether it be in teeth or tonsils. I say favourably, but this must be qualified by the well-known fact that a proportion of these patients improves little or remains *in statu quo,* giving rise to the suspicion that a secondary focus may have established itself lower down. Wilkie's investigations[3] seem to point to the gall bladder as the site of such a focus and the following history of local occurrence supports my contention.

Mr. W., aged fifty-six years, suffered from acute arthritis mainly of the lower limbs. At the end of eighteen months the legs were in a position of maximum flexion, with recurring attacks of acute arthritis in all joints. The teeth were removed and autogenous vaccines prepared and injected. The sinuses were declared free by radiographers and the adenoid tissue of the pharynx was not infected. At this juncture he got an attack of acute cholecystitis. The surgeon attending, recognizing that the gall bladder would probably rupture, drained it, when all the active arthritic condition immediately disappeared.

Carrel has stated that the rate of proliferation of epithelium and connective tissue cells is increased by the presence of lymphocytes. Sluder thinks that tonsillectomy in early life induces a predisposition to infection. At this age recurring enlargement of the tonsil is protective and if obstruction demands relief, one tonsil should be left or the adenoid alone removed. Later, frequently recurring colds, beginning with sore throats, associated with malaise and aching limbs, may demand enucleation. In any case, it seems that the patient must sacrifice his tonsils to provide tonsillectomy operations and I have never yet seen a list of indications that was not elastic enough to provide for removal in all cases. This position is unfortunate, as it gives the enemy occasion to blaspheme and leads to much criticism amongst the lay public. The removal of tonsillar infections, however, often means the difference between sickness and health, malaise and energy and if the contraindications are few, they are important and not to be lightly regarded.

In any case we must not forget that there may be other rarer foci in the throat, an infected *foramen caecum* of the tongue or suppuration of the pharyngeal bursa (Tornwaldt's disease).

The Staphylococcus.

The staphylococcus is always with us. Compared with the streptococcus it is more a nuisance than a danger, as living on our surface as a fungoid growth it only awaits its opportunity to infect our wounds or invade our cuticular glands when we are in the negative phase. In fact, the onset of the negative phase in man is very well shown by the activities of the staphylococcus and the appearance of boils, carbuncles, pustules and acne. The occurrence of very severe acne with anæmia should in my opinion always put one on the *qui vive* for incipient tuberculous invasion.

The staphylococcus waits especially for those who poke matches and hairpins into their ears, wear rough collars or expose themselves to continuous friction of any kind. The danger zone is reached when there is a pustule on the upper lip and it is very inadvisable to squeeze a staphylococcus infection of the *introitus nasi,* at any rate tie the angular vein first.

A staphylococcus skin pustule, sometimes of small dimensions, has been known to be the only visible source of infection in osteomyelitis of the tibia. If the staphylococcus is constantly in our field of vision, we must not alllow familiarity to breed contempt. As a mixed infection it is at its best and seldom leaves matters better than it found them.

The Pneumococcus.

The pneumococcus is always with us, living in the mouths and throats of its unwilling hosts, associated in most people's minds with pneumonia; but to the ophthalmologist, apart from ophthalmia, with its tendency to live in the tear sac and invade the cornea after the slightest traumatism; it is a lurking anxiety to surgeons who do major operations on the eyes and it often sets up intense inflammation in the very sac which gives it refuge. Our annual sandy blight is due to its activities and Axenfeld has pointed out that many cases of *blenorrhœa neonatorum* are due to this organism.

In the ear it is a sinister organism, less violent in its manifestations than the streptococcus. The

form of *otitis media* it gives rise to, is apt, after nearly flickering out, to light up again and give rise to a secondary mastoiditis after one has been lulled into a false security. It has a way, too, of stealing along the petrosal sinuses and suchlike devious paths and attacking the meninges when we least expect it. The pneumococcus is to be feared as the cause of unforeseen calamities and vain regrets.

The Tubercle Bacillus.

The experience of the ophthalmologist teaches that tuberculous lesion may occur without any discoverable focus in the lungs.

The iritis of tuberculosis is slow, painless and proliferating and as such often indistinguishable from sympathetic ophthalmia. This leads one to wonder how many cases of sympathetic ophthalmia supervening on injury or operation on the eye have really been tuberculous in origin. Apart from iritis, the slow recurring attacks of hæmorrhage into the retina, with their relentless course towards blindness, should lead us to subject all patients with doubtful lesions to a tuberculin test, although the very means necessary for diagnosis temporarily influence the condition for the worse and occasionally is rewarded by a shower of miliary tubercles and *exitus lethalis*.

In the ear, too, the tuberculous process is painless, insidious, the perforation multiple and the infection rebellious to any treatment except iodoform.

The Gonococcus.

The gonococcus seems to live on for ever in the prostate as a guest forgiven and forgotten by the host. At least it would seem so, so difficult is it to get a history. Yet it provides us with the most vicious of all forms of recurrent plastic iritis, necessitating a long fight in which nothing but solid atropine is an efficient weapon.

The Bacillus Coli Communis.

The *Bacillus coli communis* is commensal in the human being. Living in the intestinal tract, it is in the world, but not of the world. Yet like all uninvited guests, it is likely to become poisonous when its comfort is interfered with. Whenever, too, there is any disturbance in the adnexa of the alimentary tract, although started by other organisms, the *Bacilli coli communes* are bound to be there and to take a hand as a mixed infection. Especially in the female it has a habit of invading the urinary tract, giving rise to pyelitis which in turn provides trouble for the oculist in the form of very stubborn toxæmic iridocyclitis. It is quite obvious that the ancient Jews feared the *Bacillus coli communis*, although they did not know it by that name. The papyrus was scarce and dear, so the ritual of washing hands before meat was made obligatory as a measure of primitive hygiene.

Whether it is to be laid at the door of the *Bacillus coli communis* wholly or partly or not at all, intestinal toxæmia does occasionally seem responsible for intense iritis of which the following is an example.

C.W.H., aged sixty-two years, suffered from plastic iritis. He had for years suffered from intestinal stasis almost amounting to chronic intestinal obstruction. So troublesome was this that he had to retire from a very lucrative business. Five days ago he woke with intense pain in the left eye which afterwards spread to the right.

When seen he had a well developed plastic iritis with adhesions that refused to yield to ordinary atropine drops or ointment. From February 5, 1919, to February 13, 1919, solid atropine was dropped into the eyes daily. Atropine intoleration supervened and the adhesions having given way, it was stopped. The sequel was disappearance of intestinal stasis which has persisted to the present time.

The intestinal toxæmias, then, must be respected and especially in the aged and inert it is essential to sweep out the intestinal canal more than once before operating and then allow some time for the circulating toxins to be neutralized by salicylates and excreted by the kidneys.

Treatment.

In the face of all these dangers, what is the operator, say for instance on the eye, to do? He may eliminate the sinuses as infective, extract all the teeth (the circulating toxins after this will hold him up for a few days), give the throat a clean bill, only to be later confronted with an infection originating in an obscure attic suppuration or the circulating emboli from an *endocarditis lenta*. He must therefore do the best he can and reinforce this by avoiding operation on anyone who is obviously in the negative phase. Open the campaign with *pilula hydrargyri* 0·3 gramme (five grains) with *mistura sennæ composita* sixty cubic centimetres (two fluid ounces). Next morning and for two days before operation drench the patient with sodium salicylate 4·0 to 5·3 grammes (sixty to eighty grains) daily with or without *liquor hydrargyri perchloridi*. It is advisable to keep the salicylate going for several days afterwards and under this treatment we have found post-operative iritis and other complications to be rare. I suggest that what is good for the eye, is probably good for other fields in surgery. Major operations on the eyes bring to light all the hidden infections. The operated eye becomes for the time definitely the spot of least resistance; any toxæmia or bacteræmia makes itself felt within a few days.

What then, should be our attitude towards the infections?

Few of us use our microscopes, even if we have them. The more sportive of the profession talk of a "bug" or a "strep." or a "staph." We can get help from our excellent pathological departments and private pathological practitioners, mainly in the positive or negative findings of definite pathological organisms such as those of tuberculosis, diphtheria, typhoid fever *et cetera*. Often, however, from the very nature of things, we must be content with the enumeration of organisms without nearer identification, cocci, Gram-negative bacilli *et cetera*.

Assistance as regards the dental condition is forthcoming from the dental radiologist and I can foresee that there is going to be rapid and immediate development along this line. Further, we can get reports from urologists, proctologists,

stomatologists and oto-rhinologists, but the more we can do for ourselves, the better results we will get.

The general practitioner is happy in having the whole world of medicine and surgery as his oyster and he does not trespass on anybody's fields.

If, as the late Lord Leverhulme said, work is the best hobby, let your hobby be the ceaseless search for cryptogenic infections.

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MENORRHAGIA WITH AN APPARENTLY NORMAL PELVIS.[1]

By J. L. T. ISBISTER, M.B., Ch.B., F.C.S.A.,
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CLINICALLY menorrhagia is excessive bleeding at the time of the normal period. The bleeding may be too frequent, epimenorrhœa, or too heavy, menorrhagia, or too prolonged, menostaxis, or the bleeding may be irregular, metrostaxis. In the past we have clinically used the term menorrhagia as covering the first three of these groups and the last, metrostaxis, is referred to as metrorrhagia.

In practice it is often difficult to gather from our patient a correct idea of the actual loss. Some patients overestimate, others the reverse. If a patient has suffered for a long time from a gradually increasing period, she tends to underestimate the loss. Should such a patient call the bleeding heavy, then on closer inquiry the period is usually found to be exceptionally so.

The real point to be noted is: Are the periods heavier than previously, for every woman has her own relative standard.

In these notes the pelvis is assumed to present no obvious pathological lesions, no obvious tumours of uterus or ovary and no thought is taken of any condition arising from pregnancy. Clinically at first sight the patient complains of hæmorrhage and a vaginal examination discloses nothing abnormal.

Constitutional Causes.

With uterine bleeding the patient and doctor naturally think first of the uterus as the cause, but the excessive bleeding often has a constitutional and not a local origin. It is so easy to overlook the real cause, as sometimes it is not very evident.

A strong, healthy woman of twenty-nine years of age, with two healthy children, complained of excessive menorrhagia. She had been curetted several times without any benefit. It was a long time before her condition was diagnosed as hæmophilia or some such allied condition. Hæmophilia is rare in women, although mentioned by Osler and a few authors. Her general appearance of well-being had deceived several doctors and myself.

Another patient with menorrhagia, aged thirty-three years, looked well and strong and complained only of the bleeding. The uterus was slightly larger and harder than usual, but was otherwise normal and so, tôo, was the pelvis. She was well nourished and the abdomen not over easy to examine. By chance a large spleen was felt and then it was evident that the menorrhagia was but a symptom of some blood disease. The pathologist reported a normal red cell count and a hæmoglobin value of 85%; but there was a leucocyte count of over three hundred thousand. It was fortunate that no curettage was done, as the patient died suddenly three weeks later from cerebral hæmorrhage due to her myelocythæmia. Here again the appearance of good health was very deceptive and the presence of the spleen was almost overlooked.

Another patient, aged thirty-six, whose periods had been normal until a few months previously, had menorrhagia. She was able to work, but felt weak. The pelvis was fortunately normal, otherwise the cause might have been thought to lie in the uterus or appendages. She too had a slightly enlarged spleen which was not very large, but could be easily felt. It was the menorrhagia that brought her to consult the doctor. The physician to whom the patient was transferred, decided that there was some form of chronic poisoning, perhaps metallic, and possibly due to water supply or cooking. It was indefinite, but certainly no curettage was advisable. Under treatment the red cell count gradually rose from four to five million and the white cell count decreased from fifteen thousand to eight thousand. At first there was a large percentage of immature white cells, but the differential count became normal.

Pernicious anæmia in the early stages may cause menorrhagia, but as a rule the disease is associated with amenorrhœa. Osler(1) mentions a form arising after pregnancy and also the occurrence of hæmorrhage with this and also in aplastic anæmia which so often arises in young women.

In myxœdema a good deal of confusion has arisen, but it is certain that menorrhagia does occur. The impression that amenorrhœa is common has arisen because 44% of the patients are past the climacteric, when the myxœdema developes.

Gardiner-Hill and Smith(2) give an interesting and full series of fifteen patients who had been treated in various ways for menorrhagia, either medically or surgically or by radiation. The menorrhagia had existed for varying periods, but

[1] Read at a meeting of the New South Wales Branch of the British Medical Association, together with the Section of Gynæcology and Obstetrics of the Branch, on June 28, 1928.

thyreoid extract had not been given. The possibility of thyreoid deficiency should, therefore, always be thought of in diagnosis. These authors investigated the condition of three hundred patients in all and of each they took the basal metabolic rate in determining the diagnosis. Most of us are not equipped to make this estimation, but anybody with an ordinary blood pressure manometer can estimate the blood pressure and with the use of Read's formula the basal metabolic rate is obtainable.

Sir Joseph Verco,[3] of Adelaide, has several times in THE MEDICAL JOURNAL OF AUSTRALIA,[4] referred to the menorrhagia that is sometimes present with myxœdema; usually it is amenorrhœa. Crotti[5] says menstruation when present may be profuse or scarce, but very often is suppressed.

Exophthalmic goître, like myxœdema, may in the very early stages, says Blair Bell,[6] give rise to menorrhagia—in later stages to amenorrhœa. Some doubt has recently been thrown on the presence of menorrhagia in exophthalmic goître by Gardiner-Hill and Smith.[2] But Blair Bell says it is only in the very early stages that it exists. And apart from exophthalmic goître altogether, there is a menorrhagia with an enlarged thyreoid in girls at puberty. This latter form of menorrhagia can be controlled by calcium lactate.

It is then in the early stages of myxœdema and exophthalmic goître that menorrhagia occurs. Therefore, we should be alive to recognize these diseases early, otherwise the patient may be submitted to an unnecessary curettage or worse still it may be when our curettage has failed and the patient is dissatisfied, that another doctor discovers that the real cause of the trouble lies in the thyreoid gland. This subject is really of importance, for we all know how much commoner cases of hyperthyreoidism and hypothyreoidism are than we thought a few years ago.

Another author (Sehrt) reports that of eighty-five patients with functional menorrhagia without any pelvic lesions 69% suffered from hypothyreoidism.

Mitral stenosis is sometimes associated with menorrhagia and so the heart ought always to be carefully examined, especially in young women.

Chronic nephritis, especially when associated with high arterial tension, may cause menorrhagia.

All these constitutional and allied conditions that may cause menorrhagia, should be thought of and as rapidly as possible excluded or otherwise from the diagnosis. They are pitfalls and may it be our good fortune to notice them at the first consultation.

Masturbation and sexual excess may cause menorrhagia and are at times most difficult to detect.

There is just one other cause of heavy periods and that is superlactation. We have probably all seen it. Prolonged lactation leads to headache, backache and menorrhagia. The treatment is simply to wean the child and to give good doses of calcium lactate.

During the malignant influenza epidemic of 1919 a very large percentage of women suffered from menorrhagia. At times it was confusing and most difficult; the like has not been seen since.

In this brief paper there is no time to consider causes of menorrhagia arising from pregnancy or its sequels, nor from the uterus itself suffering from any obvious pathological condition, such as tumour formation or retroversion.

Local Conditions Around the Ovary May Cause Menorrhagia.

Dr. Wilfred Shaw,[7] of Saint Bartholomew's Hospital, has shown that with inflammatory conditions in and around the ovaries the cyclical functions of the ovary are not inhibited, but on the contrary menorrhagia is common. Histologically there is increase of lutein tissue in the *corpora lutea* and this leads to increased menstruation. This is due to the hyperæmia of the ovary.

And it may be very difficult to estimate by ordinary vaginal examination how much the ovaries are abnormal. This occurs with many of the small cysts of the ovary. The ovary may be but slightly enlarged, if at all and the pelvis is thought to be normal. An instance of this was recently noticed when the patient who suffered from menorrhagia, was operated on for subacute appendicitis. The ovaries were not enlarged, but they were affected all over with tiny, tarry cysts, which had evidently caused the menorrhagia. These ovaries were active, for the patient, an elderly *primipara,* has since been confined.

No less than 38%[8] of all patients with pelvic infection suffer from menorrhagia. That is two out of five may so suffer. The peritonitis may come from the appendix as well as the tubes; if from the upper or peritoneal aspect it is less likely to cause menorrhagia than if it came from below, because when from below, the uterus itself will be infected and be more likely to bleed. And so the ovaries, fixed and matted with adhesions, often cause menorrhagia.

As regards small tumours of the ovary, they appear to have an uncertain effect on menstruation. Small malignant tumours may cause hæmorrhage even with the uterus unaffected. In a patient of my own with both ovaries carcinomatous the tendency was to amenorrhœa.

A recently reported case of sarcoma of the ovary caused menstruation and hæmorrhage in a child of under three years of age. Removal of the sarcoma stayed the bleeding.

Very slight pathological changes in the ovary may produce most severe menstrual changes. As Dr. Shaw says, it is far too seldom emphasized how intricate are the processes which occur normally in the sexual glands and how ignorant we are of them. The *corpus luteum* plays the part of an organ of internal secretion and influences the thyreoid and pituitary.

Functional Hæmorrhage.

Functional hæmorrhage so called is the third and last condition associated with menorrhagia and this with an apparently normal pelvis.

Many of these functional cases no doubt fall under the heading of menorrhagia due to unrecognized constitutional causes and some also, as just mentioned, due to ovarian pathological causes, but pathological conditions are not macroscopic enough to be detected by examination.

The third and last condition to be described, that of idiopathic or essential or functional menorrhagia, is commonest at puberty and the menopause. Although there is no obvious pathological cause, yet there must of necessity be some pathological state causing it.

Professor Beckwith Whitehouse,[9] of Birmingham, and Professor Fletcher Shaw,[12] of Manchester, have quite recently done so much valuable and interesting work to put the physiology and pathology of menstruation on a more certain footing. The original articles may be read in *The British Medical Journal*. Novak, of the Johns Hopkins Medical School, has also done much in the same study. Whitehouse says that any discussion upon the causation and treatment of pathological uterine hæmorrhage must depend in the first place upon the views that are held with regard to menstruation. This is too large a subject to discuss fully in this place, but in the light of recent researches upon ovulation and the development of the *corpus luteum*, menstruation must be regarded as an afertile abortion of the non-pregnant decidua; it follows the death of the unfertilized ovum and corresponds with retrogressive changes in the *corpus luteum*.

Professor Whitehouse has demonstrated that with the functional or essential menorrhagia of puberty and the menopause there is hyperplasia and consequent overaction of the ovary, causing a too frequent period. Consequently curettage often does no good because it cannot alter the ovarian condition. Some good may be done by inhibiting not the ovary, but the accessory sex glands, the thyreoid or the pituitary. X rays applied to the thyreoid may do good and Whitehouse has been using injections of extracts of *corpus luteum*. Neither should we be in too great a hurry to cure our patient, for like Kipling's ship that found herself, it takes time for the various sex glands at puberty to settle down and accommodate themselves to each other and work steadily and in harmony.

In a second class patients suffer from periods that are not too frequent but too long and also without clots like the former class. These are now thought to be due to over-activity of the ovary producing too much hormone and making the uterus bleed. Such patients, Whitehouse says, are benefited by curettage and frequently cured. The reason is not quite understood.

As Class I and Class II often overlap, it practically means that when medicinal and hygienic methods fail, that curettage is advisable.[10] Here curettage is necessary because it may do good and also from a diagnostic point of view. Novak[11] urges the importance of diagnostic curettage. He says that curettage in many cases affords a permanent cure and advises recurettage as the best treatment for young women.

The third and usually older class of patient suffers from severe hæmorrhage due to an intrinsic uterine cause. Professor Fletcher Shaw[12] has very fully investigated the pathology of this class of uterus which is either suffering from subinvolution or chronic metritis. This subject is a very large one and those interested further must refer to his original articles, which are most interesting and place the pathology of chronic metritis and subinvolution so clearly. It is in this patient that a diagnostic curettage is most important.

In the past few years X rays and radium have been used and with success in many cases of intractable menorrhagia. Magarey,[13] [14] of Adelaide, has recorded a series of successful cases both at puberty and the menopause. Most European and American authorities think that it is attended with some risk in the young and child-bearing age.

An overdose may produce amenorrhœa in a young woman and Novak advises that before radium is used the facts should be placed before the patient and her friends and they should be given the choice between radium and recurettage. In uncomplicated cases about the menopause, radium, he thinks, is the ideal course to adopt, but there must be no complicating pelvic lesion, as old inflammatory complications may light up after the use of radium. If there be any associated lesion, then hysterectomy is the best and only course to adopt.

Authorities vary as to the dose of radium—the smaller the uterus, the smaller the dose. Bourne[15] and others advocate the use of radium. Roberts and Wilson,[16] of Liverpool, have used X rays largely and report success especially with patients over forty years of age. Judged from many published reports both radium and X rays are open to the objection of uncertainty when used in the child-bearing period.

Pemberton[17] agrees with most authorities that the action of the radium or X rays is on the endometrium, but chiefly on the ovary and especially on the maturing Graafian follicle. He states also that there is the possibility of a partially blighted ovum and this theoretically might result in a deformed or poorly developed child; on this point there are little data. It is known that the percentage of miscarriages is greater in normal mothers subjected to radiation. With animals it has been proved that radiation of the fœtus *in utero* causes underdevelopment.

Aschenheim[18] reports a case in which a pregnant uterus was treated by exposure to X rays in the third to sixth month on the diagnosis of fibromyoma. The child was a microcephalic imbecile with the same cloudiness of the optic lens as laboratory animals develope from radiation.

Organo-therapy, with the exception of the thyreoid and to a lesser extent the pituitary, is not satisfactory. Novak[11] points this out. Extracts of *corpus luteum* given by the mouth are not satisfactory.

Whitehouse is using an injection of *corpus lutea*. Graves,[19] of Boston, thinks that the present

ovarian extracts are feeble and inconstant in action, but there is hope that ovarian extracts will some day be of use as the result of further research work into the preparation and use of them.

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FAULTS IN THE UTERINE POWERS.[1]

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THREE factors are concerned in labour, namely, the powers, the passages and the passenger. By careful routine ante-natal examination we can find out if the passages and passenger are normal in size and we can detect any tendency to disproportion and so can estimate the probability of a normal labour in this respect. But it is very difficult to forecast accurately the action of the uterine powers and it is this uncertainty which adds such charm to obstetrical work in the early hours of a cold wintry morning. In this paper only certain aspects of abnormal uterine action will be discussed and those in which for the most part the passages and passenger are normal.

Abnormal uterine action may show itself in various ways, such as primary uterine inertia or weak uterine action, secondary uterine inertia or uterine exhaustion, tonic contraction of the uterus, contraction ring dystocia, premature uterine retraction, precipitate labour, painless labour.

Painless Labour.

Painless labours do occur, but are rare and if not due to disease of the spinal cord, it is hard to explain them.

I have seen only one patient who said she had had a painless labour. Hers was an interesting case. She was referred to my ante-natal clinic because she had small pelvic measurements and it was thought that an induction might be advisable and I was asked to express an opinion. On questioning her I found that she had one child, so I asked her if she had had a long labour. She replied: "I had no labour at all." I then said: "The pains, did they last long?" She said: "I had no pains." "Well," I said, "how did you have your baby?" She answered: "Oh, I was lying on the bed one day reading a newspaper and all of a sudden I heard a noise like a cork being pulled out of a bottle and I looked and there was the baby." I therefore did not advise any induction.

One difficulty we met with in trying to forecast the action of the uterus is that we are quite ignorant of the factors that cause the onset of labour. Before proceeding further I would like to discuss briefly the musculature of the uterus and its nervous supply.

The Uterine Musculature.

The arrangement of the muscle fibres has been the object of an immense amount of study and it is not yet fully understood. In general, three layers may be distinguished: an outer thin, an inner, also thin and the middle very thick and vascular. These layers are distinguishable only during pregnancy. Since the uterus is the result of the fusion of the two Müllerian ducts, we would expect the tubes to play a rôle in the distribution of the muscle fibres and this is borne out by various dissections. The uterine ligaments also determine the direction of the muscular bundles.

In the outer layer the fibres are more or less longitudinal and interlace in the middle, some crossing to the opposite side.

The inner layer of the longitudinal fibres of the tube is continued under the endometrium and forms the looped bundles of muscle around the tubal *ostia* and around the internal *os*. It shows a thickening on both the anterior and posterior walls of the uterus and fibres run across the fundus to connect the two. Around the tubal *ostia* and the internal *os* there are also irregularly circular thickenings. The powerful middle layer is composed of the cir-

[1] Read at a meeting of the New South Wales Branch of the British Medical Association, together with the Section of Obstetrics and Gynæcology of the Branch, on June 28, 1928.

cular fibres of the tube and the radiating fibres from the utero-sacral ligaments, the round ligaments and the ovarian ligament. These ligaments during the development of the uterus in pregnancy exert a considerable effect on the direction of its growth and during labour have a decided influence in the mechanism of the process. Many fibres run obliquely through the wall of the uterus binding all the layers firmly together, so that a most complicated network results.

The muscle fibres of the cervix pursue simpler courses. At the isthmus the circular layers are prominent, especially at the insertion of the retractor fibres in the rear, the utero-sacral ligaments. Externally the cervix contains a layer of longitudinal and oblique fibres which spread out into the bladder through the vesico-uterine ligaments and into the bases of the broad ligaments.

The *portio vaginalis* presents an inner, submucous, circular layer derived from the vagina and an outer, longitudinal from the same and a middle layer vascular and not pronounced from the similar layer of the fundus compounded with the ligaments entering the cervix.

Microscopically both arteries and veins, particularly the veins, undergo interesting changes in the uterine wall. They lose their outer coats and come to lie on the muscle bundles with only an *intima* or with very little *tunica media,* really forming large blood spaces called sinuses. The uterus thus seems to form part of the vascular system and as a matter of fact it follows vasomotor impulses, for instance the action of ergot, pituitrin and of nervous shocks.

The Nervous Supply.

The nervous supply of the uterus is very rich and comes from both sympathetic and cerebro-spinal systems. Fibres are derived from the sympathetic passing down from the aortic plexus; they are reinforced by fibres from the solar, renal and genital ganglia, forming a large plexus above the promontory of the sacrum, near the bifurcation of the aorta and called the great uterine plexus. From here the fibres pass on either side of the rectum through the hypogastric plexuses to the sides of the uterus, but mainly to the great cervical ganglion and thus into the uterus. Sensory and motor fibres come from the spinal cord through the sacral nerves. These are also distributed through the great cervical ganglion. That the sensory fibres come from the spinal cord in this way is shown by the clinical observation of painless labours in paraplegic women. This also explains the painless labour after the injection of "Stovaine" into the spinal canal.

The great cervical ganglion is a triangular mass of ganglion cells and nerve fibres lying at the side of the cervix and upper part of the vagina. During pregnancy it grows to be five centimetres (two inches) long and nearly four centimetres wide. Another ganglion exists on the posterior wall of the cervix.

The nerve centres are less well known. One is believed to exist in the cortex, one in the medulla, one in the cerebellum and one in the lumbar enlargement of the cord, because irritation at these points causes uterine contractions. There is an independent nerve centre in the uterus; the organ acts even when removed from the body. The local centre is supposed to be the great cervical ganglion, but there exist ganglionic cells in the uterine muscle and they form occasional small plexuses around the blood vessels.

The Ligaments.

The round ligaments are part of the uterine muscle and hypertrophy with it and late in pregnancy may be as thick as the little finger. They contract synchronously with the uterus and serve to moor the latter organ to the pelvis during labour. In pregnancy no such action is observable except when pathological conditions such as retroversion are present.

The utero-sacral ligaments normally vary much in their development and in the place of insertion in the uterus. They, too, are part of the uterine musculature and hypertrophy in pregnancy. The part played by these ligaments as suspensors of the uterus has been much exaggerated. Normally they are relaxed and are put on the stretch only when the uterus is drawn or forced down or up. If the displacement is kept up, they stretch or tear. During labour, however, they contract with the uterus, assisting to hold it in the proper axis of the pelvis and they aid in the dilatation of the lower uterine segment and cervix.

The round, the utero-sacral and the broad ligaments have important functions. They are part of the uterus, mere extensions of its muscle fibres and contract when it contracts. They serve to moor the uterus to the pelvis and prevent too great retraction above the child.

The round ligaments pull the uterus forwards so that its axis is in the same line as the axis of the inlet. The utero-sacral ligaments pull the cervix downwards and backwards and also help to open up the lower uterine segment and upper part of the cervix. All the ligaments by the force exerted increase the intra-uterine pressure and help expel the fœtus.

Abnormal uterine action may occur when the ligaments have been affected as a result of inflammatory adhesions or surgical operations.

Uterine Contractions.

Beckwith Whitehouse and Featherstone[1] carried out certain experiments to ascertain the character and nature of uterine contraction at various periods of pregnancy, when the nervous impulses from the lumbo-sacral cord were eliminated by means of spinal anæsthesia. They found that when the lumbar cord is paralysed, the uterus always contracts and does not relax until the drug ceases to act. Further, the contractions appear to involve the circular muscular fibres of the uterus, the longitudinal being unaffected. When the membranes are incised and the *liquor amnii* has escaped, the uterus contracts down upon the fœtus with extra-

ordinary rapidity and may cause some difficulty in extraction. This is especially the case when the membranes have ruptured before operation. The lower uterine segment and cervix also appear to be involved in the increased uterine tone. There was no polarity as evidenced by dilatation.

The uterus contracts equally well whether labour has started or not and in their experience the tired organ after forty-eight hours of expulsive effort contracts quite powerfully when the lumbar stimuli are eliminated. The contractile power is in no way diminished during the early months of pregnancy. They state that contractions of the circular muscle fibres during pregnancy will not induce labour, as a patient four months pregnant had a large vaginal cyst removed under lumbar anæsthesia and abortion did not occur.

This persistence of contraction and tone is in contrast to the state of the uterus when a general anæsthetic is administered. The uterus in an anæsthetized woman can be induced to contract by manipulation, but generally relaxes somewhat after a few minutes. They think that the circular fibres of the uterus both in the *corpus* and *cervix uteri* are stimulated by the sympathetic system and inhibited by the lumbar cord. The longitudinal fibres both corporeal and cervical appear to be stimulated by lumbar cord impulses and inhibited by the sympathetic.

In other words, they show that local paralysis of the lumbar cord, whether permanently or temporarily produced, produces pronounced contraction of the circular muscular fibres of the uterus as a whole, owing to uncontrolled sympathetic impulses, but the expulsive power is lost owing to the paralysis of the longitudinal fibres. Similarly weak or absent sympathetic impulses produce overaction of the longitudinal fibres and increased expulsive efforts. The tone of the uterus as a whole, however, is lost and the organ is flabby owing to paralysis of the circular fibres.

They summarize the present position as follows.

(i) The nervous mechanism controlling the uterus is constituted by three systems, (*a*) local, (*b*) sympathetic, (*c*) lumbo-sacral autonomic;

(ii) The local is capable of producing rhythmical uterine contractions and is independent of the sympathetic and autonomic systems in common with other involuntary muscle;

(iii) The sympathetic stimuli are motor to the circular fibres and inhibitory to longitudinal bundles;

(iv) The lumbar cord stimuli are motor to the longitudinal fibres and inhibitory to the circular fibres;

(v) Both autonomic and sympathetic stimuli are controlled by higher centres in the medulla and possibly cortex, but are capable of acting independently of the same;

(vi) Reflexes, both autonomic and sympathetic, are probably important factors in normal uterine contractions (for example, mammary and perineal stimulation);

(vii) Uterine contractions to be effective depend equally upon the integrity and correctly adjusted balance of autonomic and sympathetic impulses.

Disturbances in either, whether in the direction of augmentation or diminution, will interfere with the normal course of parturition.

The practical application of this may be of value in cases in which a temporary increase of intra-uterine action is indicated as in *ante-partum* hæmorrhage from premature separation of a normally situated placenta. It is possible that this may be obtained without risk of inducing labour by means of lumbar cocainization.

Uterine Inertia.

Uterine inertia may be either primary or secondary. Primary uterine inertia means weak uterine contractions at the onset of labour and possibly persisting all through labour.

Secondary uterine inertia means exhaustion of the uterus and is usually met with when the work the uterus has to do is too great, as in a case of large fœtus or where some obstruction to labour is present, such as contracted pelvis or malpresentation.

Primary uterine inertia is very common and you are all familiar with its ætiology, but there are a few points I should like to discuss.

Normally during abdominal palpation contraction of the uterine muscle occurs, the Braxton Hick's contractions, and the character of these contractions gives an indication of the activity of the uterine muscle. If no contractions occur, the uterus is flabby, malpresentations are often found and inertia during labour may be expected. According to Blair Bell[2] in these circumstances there is an insufficiency of pressor substances in the blood. Confirmation of this may be obtained by an estimation of the systolic blood pressure which, he says, should be higher than normal during the last weeks of pregnancy, about 140 millimetres of mercury. If the blood pressure is 110 millimetres or less, there is almost certainly some insufficiency of pressor substances and this must be made good. He recommends the administration of calcium in the following form: Pure concentrated lactic acid, 12·00 g. (200 grs.); precipitated calcium carbonate, 4·5 g. (75 grs.); chloroform water, 240 c.cm. (℥viii). Sixty cubic centimetres (two ounces) of this should be given every night and in addition 0·5 cubic centimetre of infundibulin every night and morning for a fortnight before labour is due. With this he had good results in cases complicated by inertia in previous labours.

Another predisposing factor is mental anxiety and fear causing increase in sympathetic action. Women love to dwell on all the lurid details of their confinements and often seem particularly anxious to impart these to young prospective mothers; the details invariably lose nothing in the telling. I think it is the duty of the obstetrician to counteract this by a sensible statement of the true facts and to

reassure the patient that a large measure of relief can be given.

Richard C. Norris[3] expressed my views very well when he said: "The oftener I see a woman in the ordeal of labour, the more I am convinced that her nervous system is a very important factor as to how her uterus will function and to what extent pain will inhibit uterine function. The proper functioning of the sympathetic nervous system is of the greatest value. When it fails, it may make her obstetrically unfit. If she becomes nervous, her family is nervous, her body chemistry is under stress, she sleeps badly and daily she becomes less fit obstetrically for her labour."

Another condition often associated with primary uterine inertia and one that seems frequently to be overlooked, is obliquity of the uterus, usually to the right; it is often found with occipito-posterior positions.

Normally during a contraction the uterus becomes narrowed from side to side, rears itself slightly forwards and aided by the contractions of the round and utero-sacral ligaments is so placed that the direction of its force is in the direction of the pelvic axis at the brim of the pelvis, that is, downwards and backwards. This forces the presentation well down into the cervix and so stimulates the great cervical ganglion. In obliquity of the uterus the uterine force is directed downwards and to one or other side; this tends to cause a malpresentation, which does not fit the lower uterine segment and cervix so well and so does not exert the full normal stimulation of the great cervical ganglion. It is obvious that if the force is directed in a wrong direction for hours, progress will be very slow and exhaustion of the uterus will tend to occur.

The treatment for this condition is to recognize it early and to apply a firm abdominal binder after correcting the obliquity. It is remarkable how often by this simple procedure labour will terminate much sooner than anticipated. I would like to stress this point because often patients are admitted to the Women's Hospital, Crown Street, who give a history of long labours, with difficult forceps deliveries in several previous confinements, and who have short normal labours with the binder.

The same thing is often seen in the second stage when, with the patient on her back the contractions are frequent and strong, if she is placed in the left lateral position too soon, the pains appreciably weaken to increase again when she is placed on her back.

Treatment of Primary Uterine Inertia.

The treatment I adopt is at first to correct any obliquity that may be present and to apply a binder. The bladder is emptied regularly, with a catheter if necessary, a hot enema is given and repeated if necessary, the patient and her family are reassured to the best of my ability and the relatives are informed that labour will not end perhaps for two or three days.

Phenazone (six decigrammes or ten grains) will often change weak painful contractions into more normal ones. If the patient has been several hours in labour and is tired and has had no sleep, I give her a hypodermic injection of fifteen milligrammes (a quarter of a grain) of morphine sulphate and 0·4 milligramme ($^1/_{150}$ grain) of atropine sulphate. Five minutes later I start administering chloroform slowly and keep her lightly anæsthetized for half an hour. This will rest her for a variable time from one hour to six hours. Sometimes I add 0·6 milligramme (one one-hundredth of a grain) of scopolamine hydrobromide. In very long labours I have repeated the morphine and chloroform once or sometimes twice, but never if I think the child will be born within four hours or during the second stage. When the patient awakens and the pains return, I instruct the nurse to give her a 0·3 gramme (five grain) quinine bisulphate tablet. I have found quinine bisulphate very useful in strengthening the pains and I often repeat it every four hours for two or three doses. Giving the patient a whiff of chloroform with each pain in the second stage is very useful. I only give sufficient to take the acute edge off the pain and remove the mask as soon as the pain passes off. With this a fretful irritable patient will often be changed into a hard worker using her pains to the full extent of her power. Only a very little chloroform is necessary to give relief and in my opinion is much better than ether because more of the latter has to be given to get a result and the pains, I think, are slowed more.

In a *multipara* if the cervix is soft and dilatable and about the size of a crown piece and the pains are weak and ineffective, I have found small doses (0·18 mil or three minims) of pituitrin very useful. I have used in the past larger doses of pituitrin, sometimes with dramatic success. But on some occasions the pains have been so violent that I have had a bad fright and in others on examination after a fortnight I have been chagrined to find cervical lacerations where none was expected, sometimes with scar tissue in the vault of the vagina.

Recently Aleck Bourne and J. H. Burn[4] investigated the action of pituitary extract during labour and the following remarks are abstracted from their paper. They introduced a rubber bag into the uterus which was connected to an ordinary mercury manometer connected with a clockwork drum on which tracings could be recorded. They found that the comparatively small dose of two units (0·18 cubic centimetre) is sufficient in the majority of women in labour to produce a definite and sometimes striking effect on the strength and frequency of uterine contractions. The earlier phases of labour in some women are characterized by uterine contractions which are irregular both in force and frequency with very slow progress in dilatation. In these patients a small dose of pituitary extract seems to have a valuable effect, not so much in providing a powerful stimulus to strong expulsive uterine contractions, but in regularizing such contractions and perhaps in producing coordination between the fundal contraction and the cervical inhibition or relaxation.

The effect produced was of two kinds. In some the uterus passed into a mild tonic contraction with superimposed waves of rhythmical contraction. In others there was an increase only in the force and frequency of the uterine contractions, the intermediate relaxation was complete.

The records showed that it was in cases in which the *os* was dilated enough to admit not more than two fingers, that the injection most often produced mild tonic contraction and that in these the injection did not produce rapid increase of dilatation. The duration of the contraction varied from ten minutes to thirty minutes. There was no evidence of any ill effect. The tonic contraction was not of sufficient intensity to cause cervical laceration for the sustained increase of pressure did not exceed the highest pressure of the individual contractions before injection. The duration of the greatest tonus was not more than ten minutes.

The percentage increase of work per minute has been calculated from the work done in periods varying from thirty to sixty minutes both before and after the injection and therefore represents more than the immediate increase of work. The increase determined in this way varied from 37% to 392%, with an average figure of 169%, thus on the average the work done per minute was rather more than two and a half times as great after the injections as before. The injection need not be repeated more than once an hour.

They considered that a small dose, two units, will without danger produce effect of considerable value in assisting the course of a sluggish labour and is safe at any stage of labour in all cases in which there is no mechanical obstruction. The dangers attending the use of the extract in labour are solely due to excessive dosage. A dose of two units may be expected to produce an effect which should be useful in hastening the course of a sluggish labour, provided that it is not administered before the *os* is about one-half dilated.

This seems to me to be a very good method of treatment. Forceps are often required if the above measures are not successful.

Contraction Ring Dystocia.

Contraction ring is a condition in which delivery is prevented by a local ring-like spasm of the uterine muscle which grips some part of the fœtus. It may occur also in the third stage. It is called this in distinction to the retraction ring (Bandl) of tonic contraction.

The ring is located between the lower, non-contractile portion and the upper, contractile part of the uterus and is usually found over a depression in the child's outline. Some authorities deny its existence and consider it the lower thickened margin of the tonically contracted upper segment.

In Bandl's retraction ring the upper segment is thickened, retracted, tonically contracted, with no period of relaxation. The lower segment is thinned and tense, the patient is very distressed and the abdomen very tender.

In the contraction ring the upper segment is not tonically contracted and relaxation occurs and there is no thinning and overdistension of the lower segment. It is really a manifestation of undue irritability of the uterus and is found in cases of premature rupture of the membranes, after the use of oxytocics, after intrauterine manipulations, in neurotic patients with increase of subjective pain varying in site but usually low down in the back, and in whom the pains were irregular and ineffective over a long period of time, after a premature attempt at instrumental delivery and sometimes after sacral anæsthesia. It is usually discovered during a forceps delivery in a case which apparently ought to be an easy one, but in which the head either makes no movement or the head and uterus descend together.

The condition is diagnosed by passing a hand into the uterus and feeling a firm ring gripping the fœtus. The patient's temperature and pulse are normal, she is not exhausted and the uterus on palpation contracts and relaxes as usual.

Gibbon FitzGibbon[5] found that by applying forceps and keeping up continuous pressure for ten minutes the ring relaxed and delivery was easily accomplished.

Clifford White[6] found that unless the ring is easily dilatable Cæsarean section was necessary. In one case during Cæsarean section the ring had to be incised before the fœtus could be delivered. He states that the ring may persist for hours.

Stevens[7] says that the proper treatment is to give the patient morphine and to wait until the local spasm has passed off. This is usually heralded by spontaneous delivery or at least by some descent of the presenting part indicating that the forceps can be used without danger. He says that the practical point is to rely on the mother's pulse and temperature and as long as the early signs of exhaustion are absent, he relies on morphine and does nothing else.

Rucker[8] found that after the injection of 0·3 cubic centimetre (five minims) of adrenalin (1‰) the ring disappears and the child can be easily extracted. He reports the case of a woman in her second labour with premature rupture of the membranes, a left occipito-anterior position, the cervix fully dilated, who was having hard pains and was given sacral analgesia. Forceps were applied and an unexpectedly difficult delivery was done. Two loops of cord were tightly round the neck. When the cord was cut between clamps and unwrapped, he was still unable to deliver the shoulders or even rotate the body. Evan at the acme of the combined efforts of the patient straining down, the nurse pressing on the fundus and the doctor exerting traction on the head, the head appeared to be drawn upward against the perineum. Diagnosing a contraction ring he gave 0·3 mils (five minims) of adrenalin (1‰) and then extraction was surprisingly easy.

Aleck Bourne and J. H. Burn[4] also investigated the action of adrenalin. They found that the hypo-

dermic injection of 0·3 cubic centimetre of adrenalin (1‰) led to no striking change in the uterine contractions, but they appeared to be reduced in size and frequency. After a second injection 0·6 cubic centimetre one and a half hours later the result was repeated. By the use of a planimeter it was found that the first dose reduced the work done per minute from the value of 125 to 87. The second injection reduced the work from 95 to 70. The results appeared significant because of the constancy of the work done in the periods before, between and after the injections. An injection of 0·3 cubic centimetre into a vein was followed by complete cessation of contractions for twelve minutes, after which the pains began again. They consider that the main action of tolerable doses of adrenalin on the pains of labour is inhibitory. They think that it may be deduced from this that the effect of a moderate stimulation of sympathetic nerves on the parturient human uterus is also inhibitory. They also suggest further that the augmentor action of hypnotics, such as chloral, may in part be due to the depression by these hypnotics of inhibitory impulses passing from the brain centres of anxious or emotional patients to the uterus by way of the sympathetic supply. They consider this inhibitory action of adrenalin may have a therapeutic application in conditions in which it is desired to relieve spasm or tonic contraction of the uterus, such as before version where the uterus is in an irritable condition. It must not be used if chloroform has been administered or sudden death from heart failure may result.

Similar in nature, possibly, is the condition of the so-called rigid *os*. This is often found in elderly *primiparæ* and in neurotic patients and in some of my patients there was definitely some mental instability. The pains vary, sometimes being very weak and infrequent, but at other times being very strong and frequent. As in contraction ring dystocia chloroform pushed to full surgical anæsthesia for some time often acts very well, but in elderly *primiparæ* it may not be successful and a Cæsarean section may have to be done.

Precipitate Labour.

In precipitate labour the pains recur with unusual frequency and strength, so that the child is born more quickly than usual. I have seen this once following the induction of labour by Watson's method of castor oil and quinine in which the pains were so continuous and violent that I was afraid the placental circulation would be so interfered with that the child would be lost. Fortunately chloroform delayed labour to some extent and the child was all right. But this leads me to utter a warning on the subject of induction by castor oil and quinine. Several cases have now been reported in which the child was still-born, after an apparently easy labour and in which no fœtal distress could be detected before the administration of the quinine. Personally I have not lost a child by this method, but in one case in which labour did not start, the child's movements became so sluggish and different to what they had been and the heart sounds were so slow and feeble that I spent a very anxious twenty-four hours. My colleague, Donovan, however, is convinced that the method is not free from risk, as he knows of several fœtal deaths in which apparently no other cause was suggested.

There are other abnormalities such as excessive and premature retraction and absent retraction, tonic contraction of the uterus and so forth which I would like to discuss, but as this paper is already over long, time will not permit of my doing so.

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A FIFTY YEARS' RETROSPECT OF MEDICINE AND SURGERY.[1]

By J. W. FLORANCE, M.D.,
Mooroopna, Victoria.

THIS paper, which has been called "A Fifty Years' Retrospect of Medicine and Surgery," deals really with my personal recollections of diseases as treated and surgical procedures during the past five decades and also of some of the men I have met and with whom I have worked. If I can interest my younger fellow practitioners and give them an insight into conditions that existed during these years, I will be well satisfied.

It was in 1877, that by the courtesy of the late Dr. Hinchcliffe, I was allowed to walk the wards of the Bendigo Hospital. True, I had no knowledge of *res medicæ*, but possessed a very strong desire to know what there was in the healing art. Dr. Hinchcliffe was fresh from the wards of the Edinburgh Royal Infirmary, had been a pupil of Lister and was a whole-hearted believer and exponent of antiseptic principles. Remember that it was only ten years before (in 1867) that Lister had published his experiments with carbolic acid and that even then his opponents had not ceased decrying the

[1] Read at a meeting of the Goulburn Valley Division of the Victorian Branch of the British Medical Association on May 5 1928.

antiseptic treatment of wounds. Why, in 1882, Keith, at the International Congress in London, said that Listerism would add 2% to 3% to the mortality of ovariotomy and Lawson Tait was certain that he was right.

Anyhow, the Bendigo Hospital smelt of carbolic acid, entrance hall, operation room and wards. I was taught to put carbolic oil in linseed meal poultices, carbolic oil dressings on wounds and to wash the skin with carbolic lotion of a strength of 5% or weaker. Primary union was rare, laudable pus being hailed with satisfaction. You see that placing reliance on antiseptics and neglecting hygienic precautions such as absolute cleanliness, led to breaking-down of wounds and septicæmia. It was no uncommon thing for a surgeon to go straight from dressing a foul wound to the operation room and merely washing his hands, proceed with the operation. I have, in fact, seen them go from making and attending a *post mortem* examination to the operation room.

The wards in those days were frequently scenes of pain and distress and the atmosphere was as a rule a thing to be avoided. Acute rheumatic arthritis patients secured little relief from alkalis and Dover's powder. Pneumonia patients were always treated in a close and foul atmosphere, so that abscess and gangrene were not uncommon. I remember Dr. Atkinson stopping at the door of a medical ward and, giving a sniff of his nose, say to Hinchcliffe that there was a patient with gangrene of the lung in the ward. This will give you an idea of the unwholesomeness of the place. Dr. Thom, of Eaglehawk, and Dr. Penfold were frequent visitors and occasionally operated. Dr. James and Dr. Hugh Boyd were not seen so often. I think that Dr. Hugh Boyd must have had the largest obstetric practice in Bendigo.

Ovariotomy led the way to abdominal surgery and I have often wondered how it was that the first ovariotomy was not performed at the Melbourne Hospital until 1881. I had heard that these operations had been done by Tracy at the Women's Hospital previously. Sir (then Mr.) Thomas Fitzgerald was the operator and I well remember the occasion, as I attended. A vacant ward on the third story opposite to Ward I was well scrubbed out and cleaned. A sheet with an oval opening was thrown over the abdomen. (Nowadays there are more sheets and towels used at a circumcision.) As the contents of the cyst were of a glairy and gelatinous nature, a "snag" was struck and the operation much prolonged. McDowell, in America, and Clay, of Manchester, England, had performed ovariotomy early in the century, but it is interesting to note that Keith in *The British Medical Journal*, 1878, attributes his success in his last 230 operations to four conditions: (i) To drainage by large perforated glass tubes going to the bottom of the pelvis; (ii) to the use of the cautery in dividing the pedicle; (iii) to the use of Koeberle's compression forceps (somewhat similar to Tait's and Spencer Wells's forceps); (iv) to the substitution of ether for chloroform in his last 230 operations. Practically twenty-five years passed away before all these lessons of Thomas Keith were generally utilized.

When doing *post mortem* work in 1883 with Professor Allen, we would find the *appendix vermiformis* inflamed, ruptured or gangrenous in cases of general peritonitis. The Professor used to remark that it was evident that the peritonitis might be due to the appendiceal inflammation. (Mayo Robson in 1889 attributed the appendicitis to a previous typhlitis.) Little did I then think that in twenty years' time I would be operating on all sorts of appendicitic conditions and that there would be such a controversy on when to operate. It was very unlikely to save any of the perforating or general peritonitic patients. I have never forgotten using the Fowler position and Murphy drip in 1909 and saving three of these general pertonitic patients in one week. Our Matron, who was sister then, well remembers those patients.

When a student in my fourth and fifth years, my parents having gone to Ballarat to live, I visited the Ballarat Hospital in my vacations. There I met Dr. Owen, the Superintendent, and became acquainted with Dr. Hudson, Dr. Eastwood, Dr. Whitcome and Dr. Radcliffe, and later Dr. Woinarski.

I can well recall a visit to Dr. Radcliffe at his invitation. He had a large midwifery practice and his consulting room possessed more books than I had ever before seen in a private house. But the two top shelves held my attention. Here were glass jars of specimens, chiefly of fœtuses, monsters and curiosities. I believe that the collecting of such things was a common practice among the old obstetricians. It makes one pause to think of what has become of this practitioner's knowledge, his books and specimens.

I also met in those days Bennett, of Stawell, whose brain was full of knowledge of hydatids and their treatment. He particularly impressed on me the folly of aspirating through the skin, a common practice at that time. Tremarne, of Creswick, who had patients from Melbourne and districts even outside Victoria, and Cross, of Horsham, I also met.

I commenced practice at Shepparton in 1885. In the country, at any rate in the Goulburn Valley, there was hardly anything known of medical ethics. To call a man into a consultation was as likely enough to end in his taking over the patient and on one occasion the local health officer filched a patient with typhoid fever from me and then sent him over to the public hospital. All patients were treated at their homes, enlisting relatives or friends to nurse. In my first year I had twenty typhoid fever patients, all treated at their homes. There were no nurses, merely "gamps," who were more nuisance than enough. Midwifery was their sole employment and most of them considered they knew more than the doctor. One "gamp" offered me a commission on all patients I would bring her.

Hydatids were very common and I have seen them in almost every part of the body. I had to open one patient twenty miles out one wet night. The sac had broken down and an abscess had formed at the root of the neck and was pressing on the patient's trachea and suffocating him to such a degree that he was cyanotic. This abscess was opened by candlelight and cysts came away in quantities.

I came over to Mooroopna and took Dr. Trood's place as medical officer of the Mooroopna Hospital in 1891. Every year now hospital conditions improved. Salicylic acid, discovered by Kolle in 1874, had come into use for acute rheumatic states. It was found that in the form of sodium salicylate it was easier to dispense and later that sodium bicarbonate was needful to accompany it in a prescription, especially if large doses were employed, this to counteract formic acid, air-hunger *et cetera*. Cocaine, discovered by Nieman in 1860, was found in the early 'eighties to be useful as a sensory paralysant and mydriatic and was used first in eye work; later it extended to other fields of surgery. The open air treatment of pneumonia and other infectious diseases all added to the pleasantness and hygienic conditions of the wards. The approach to asepsis was rather sudden and it was appreciated that antiseptics were just so far good as they assisted towards asepsis. As we had few nurses and some years many typhoid fever patients (one year as many as 180), it was found an advantage to have the patients naked with merely a sheet over them. This obviated movement on their part and exertion reduced to a minimum for the nurse when sponging.

It seems strange that remedies such as salicylates and cocaine did not come into use until long after they were discovered. But so it is now. For instance, in diathermy we have one of our most valuable means to relieve and cure disease, yet notice how little it is in use. So it has been with local anæsthesia. Eventually more use will be made of "Novocain" and other local anæsthetics. Of late years gland treatment has come into use. It seems now many years since we started to use thyreoid gland, certainly a considerable period before adrenalin and pituitrin came into use. Now all three have a definite place in our armamentarium. This gland treatment has opened up an immense field of experiment and inquiry and we are almost bewildered by the manufacturing chemist with hormones *et hoc genus omne*. We are unexpectedly having our temperaments and individualism assailed, affairs which we have always understood were a matter of heredity. But your hormone advocate even considers (so I have noted) that the rebellious spirit of the socialist is due to some peculiarity of those ductless glands. A time will come, they say, when by suitable injections the rebellious may be converted into docile, long-suffering citizens.

The improvement that is constantly being shown in radiology cannot be neglected by the working practitioner and he has either to purchase a plant or rely on the specialist in X rays to assist him. Certainly the last two years have shown a great improvement in appliances and technique. Consequently the radiologist is more in evidence.

It was in 1893 that my professional life came to mean more than the ambition to succeed in my work. For though I had met my friend Heily, of Rushworth, once or twice before, it happened that on one moonlight night after a consultation in the country, we had a long talk chiefly about medical ethics and thereupon resolved that our brother medicos were to receive all the help we could hold out to them. And so it came to pass that we started the Goulburn Valley Medical Society. It had the hearty assistance of Reid, of Nagambie, Wight, of Kyabram, the late McKenna and Herring, of Shepparton, as well as all the medical men in the Valley. We had meetings about three or four times a year. These gatherings were great affairs with Heily for our President, the body and soul of the Society. Always a dinner, followed by papers and questions about fees and ethics, filled up the afternoon.

We were in later years enabled to become a subdivision of the Victorian Branch of the British Medical Association and have regular clinical meetings and visits of men versed in their subjects. These meetings are a power for good and we especially welcome tonight the President and some of the Council of the Victorian Branch of the British Medical Association.

SOME REMARKS ON MANGANESE TREATMENT OF PNEUMONIA.[1]

By F. S. COOMBS, M.B., B.S.,
Katamatite, Victoria.

IT is with extreme diffidence that I venture on a few remarks regarding the use of potassium permanganate in the treatment of pneumonia, but I am convinced by my experience, necessarily rather limited, that here to our hands we have a cheap, reliable and easily applied form of therapy which utterly changes the prognosis of that dread disease which Osler, of respected memory, so aptly termed "The Captain of the Ranks of Death." So fearful has been the mortality of this scourge, that we cannot afford to pass by any remedy which offers alleviation of our admitted helplessness in so many cases in the past.

The experience of other physicians in the Motherland, combined with my own results, has made of me an earnest convert to this treatment. Gone are the days of ruthless disturbance of desperately ill patients to apply mustard pastes, linseed poultices, "Antiphlogistine" *et cetera;* routine need for medicine by mouth has ceased to exist and the manganese treatment can be applied with a minimum of disturbance and in most cases a maximum of effect.

[1] Read at a meeting of the Goulburn Valley Division of the Victorian Branch of the British Medical Association on May 5, 1928.

No need for me to attempt to word-paint for you the picture of a patient ill with pneumonia, but let me tell you of the dramatic change in the patient after he has had a few injections and retained them.

There is ease of breathing; the colour changes from the cyanotic tinge we all know to a healthier pink hue; the harsh tearing cough becomes loose and easy; the pulse steadies and slows with the respiration; the patient looks and is comfortable and insomnia becomes a minor worry. The toxicity of the pneumonia fades into the background and appetite speedily returns. In fact, so dramatic is the change in the patient that one begins to feel that the remedy is specific and personally I feel that no pneumonia is hopeless till potassium permanganate has failed.

In only one of my cases was it of no use and that is no reflection on the treatment, for medical aid was not called till the patient was in desperate straits suffering from influenza complicated by pneumonia and pleurisy of over one week's duration.

I will now briefly outline the technique as given by Nott in his original article in *The British Medical Journal*, July 17, 1926.

Technique.

Avoid aperients as much as possible, as the bowel is gradually unloaded by the injections.

The solution consists of 0·12 gramme (two grains) of potassium permanganate (pure) dissolved in 568 cubic centimetres (one pint) of water comfortably hot (40·6° C.). If cold, it causes rectal irritation and is not well retained. The solution must be fresh.

The dosage is from 90 to 300 cubic centimetres (three ounces to ten ounces) according to the age of the patient. The injection is given *per rectum*, slowly, by means of a funnel and tube of small bore, the patient being in dorsal decubitus or on the side with the buttocks raised by a pillow.

Injections are given every two and a half to four hours for the first twenty-four to thirty-six hours; the interval between injections is judged by the day of disease on which the patient comes under treatment. The earlier the patient is seen, the longer the interval between injections and *vice versa* and again, the less the injections are retained, the more frequently they must be given. Once temperature reaches normality in older children and adults, then give two injections every day for three days and one a day for three more days.

In younger children and infants the author recommends injections twice a day for ten days after the temperature becomes normal. I have found this unnecessary in most of my cases and give instead two to three injections a day for three days after the temperature is normal and permit the patients to go home after a few days' sitting up and walking around in hospital, provided, of course, that the cardiac and pulmonary condition is satisfactory. Cardiac tonics and stimulants may be needed, especially in septic pneumonia, but so far I have found them necessary for only two patients, both aged forty-eight years, one of whom recovered.

Most of my patients were juvenile, but records in *The British Medical Journal* tell us that success attends the manganese treatment in patients ranging from six months to eighty-three years of age and I trust in time to verify this personally.

Results of Treatment.

The results of treatment may be described as follows:

1. Breathing becomes easier, deeper and slower in a few hours after the first injection.
2. Cough becomes freer, softer, less tearing in character.
3. Sputum becomes less tenacious and easier of expectoration in twenty-four to thirty-six hours.
4. Cyanosis gives place to a healthier hue.
5. Sleeplessness is no longer a worry and sedatives are only rarely needed.
6. The rusty sputum is early replaced by a white frothy expectoration, though this may be ushered in by a small hæmoptysis, of no ill-omen, though sufficiently alarming if not expected.
7. The temperature drops usually within a few hours after the first or second injection and if it does take a few days to reach normal, at any rate it strikes a lower level, with definite decrease in toxicity and great comfort to the patient.
8. Appetite returns even before normal temperature.

One of my adult patients was very hurt because I would not allow him to have liver and bacon, fried, whilst his temperature was 37·8° C. (100° F.) and his pulse rate 110. Twenty-four hours later his temperature became normal and against my inclination I allowed him a small dish of the above tit-bit. The only result was a bitter complaint about the small amount he was allowed.

The patient who died, aged forty-eight years, was given potassium permanganate injections till he rejected them as they were being given. I regarded his condition as pneumonic influenza, from his history and the course of the illness. He responded to nothing and settled to an unresolved pneumonia. Needling in six places on two occasions yielded nothing.

The juvenile patients puzzled me at first, since on admission to hospital they were suffering from typical pneumonias and yet some of them in twenty-four hours appeared so well and bright and hungry that I began to doubt the diagnosis; however, in each case examination revealed definite signs in the lungs still.

There lies the trap, for if the patients are allowed to go home too soon there is a big risk of relapse and one must remember that the lung does not clear up in a way quite parallel with the disappearance of the toxicity and fever, hence the need for continued injections for a few days after the crisis.

One more thing I noted was that the temperature chart would start off in a manner typical of lobar pneumonia and then assume a bronchopneumonic character, though striking a lower level with each rise.

This fact gave rise in *The British Medical Journal* to much spirited criticism from men who had not

tried the treatment, about the correctness of the diagnosis of lobar pneumonia.

The result of the treatment in children is at times decidedly embarrassing, for parents leave them with you today, apparently very ill indeed, and the next day they come back to find them often sitting up in bed, comfortably and happily playing with toys or books. I am sure the parents have doubted the truth of my diagnosis on more than one occasion.

One thing I am very sure of and that is, if you can get the patient very early, there is a splendid chance of aborting the attack. I saw this instanced in three of my latest patients, all children.

Case Histories.

Here are the brief details of some of my nineteen cases:

F.T., a male, aged eight months, was ill for two days with cough, fever, rapid grunting respiration, *alæ nasi* working and herpes. The temperature was 40° C. (104° F.) and the pulse rate 140; the respirations numbered 52. A diminished vesicular murmur was heard at the left base posteriorly. He was given potassium permanganate injections sixty cubic centimetres (two fluid ounces) every three hours. Twenty-four hours later he had no grunt, the cough was easier, the temperature 37·8° C. (100° F.), the pulse rate 120 and the respiratory rate 24 in the minute. He had slept shortly after receiving and retaining the first injection. The temperature, pulse and respirations were normal on the third day. He went home on the seventh day.

A.B., a male, aged ten years, was ill for twenty-four hours with harsh cough, rapid respirations, fever, anorexia, pain in the right side of the chest at the base. His temperature was 40·6° C. (105° F.), his pulse rate 140 and his respiratory rate 40 in the minute. Crepitations were audible at the right base. He was put on potassium permanganate one hundred and fifty cubic centimetres (five fluid ounces) every three hours. His crisis occurred in forty-eight hours. He went home after seven days.

A.C., a male, aged thirty-seven years, a returned soldier, had a bad cold for seven days. He had a sudden pain in the back twelve hours before he was seen with heavy cough and tenacious sputum. He was breathing quickly and grunting *et cetera*. His temperature was 40·2° C. (104·4° F.), his pulse rate was 130 and his respiratory rate 36 in the minute. Crepitations were audible at the right base, dulness was present and raised pitch was noted on expiration. He was put on potassium permanganate, three hundred cubic centimetres (ten fluid ounces) every four hours. His temperature was normal next day. He was up in four days.

J.F., a male, aged forty-nine years, was taken ill with typical influenza twenty-four hours before he was seen. He went to bed and took "Aspirin" and hot whisky and lemon. He was allowed up after five days. Two days later cough became much worse with pain at the right base on breathing. Respirations were grunting and rapid. Crepitations and friction were audible at the right base which was very dull to percussion. On potassium permanganate injections being given every four hours the pain ceased in the chest and breathing was easier in three days. The temperature came down to and remained swinging around 37·2° C. (99° F.) for about three weeks. Consolidation would not resolve. Sputum was white and thick from the third day on. No tubercle bacilli were found in the sputum. Nothing was found on needling the chest in five places over the dull area. I was then informed that he had been ill for three months, three years previously, with an unresolved pneumonia; he had walked about for seven days with pneumonia before he saw a doctor. I persisted with potassium permanganate with a few days' spell occasionally on account of rectal irritation. I also gave iodides *et cetera*. He was up in six weeks and apparently quite recovered six weeks later.

W.F., a male, aged forty-eight years, called me at 5 a.m. as he thought he had appendicitis. On questioning him I found that he had been suffering from influenza a week previously. He had a slight cough, but no sputum. He had felt fairly well on going to bed the previous night after attending a funeral in Shepparton in the afternoon. His bowels were well open. His temperature was 39·2° C. (102·6° F.), his pulse rate 130 and his respiratory rate 24 in the minute. His tongue was furred. He was tender and rigid in the right iliac fossa. Dulness and diminished breath sounds were present at the right base. Mustard pastes were applied every four hours and the usual *régime* was adopted. Twenty-four hours later, definite pleurisy occurred at the right base and tubular breathing was present. He complained of great pain. Rusty sputum was present. He would not go to hospital and would not have injections. Gradually he got worse till he came to hospital three days later to die. He thought that a house was never the same if anyone died in it. He was given potassium permanganate every three hours. Crisis occurred in five days. He was home a week later.

My last three patients were all children.

R.L., aged one year and nine months, had a cold for a week. He suddenly developed severe cough, fever, rapid grunting, breathing and vomited six hours previously. His temperature was 40·6° C. (105° F.), his pulse rate 140 and respiratory rate 60 in the minute. His cheeks were flushed, the *alæ nasi* were working and he had a dirty tongue. The picture was typical. I could find nothing definite beyond a few rhonchi in the right side of the chest. On potassium permanganate ninety cubic centimetres (three ounces) being given every four hours, the temperature was normal next morning and he went home in three days.

V.B., aged four years, suffered from a sudden cough, rapid breathing, fever and vomiting twelve hours before he was seen. His temperature was 39·7° C. (103·5° F.), his pulse rate was 130 and his respiratory rate 36 in the minute. His cheeks were flushed. He had a diminished vesicular murmur at the left base posteriorly. He was given potassium permanganate and went home in four days.

L.M., a female, aged eight months, had a sudden cough, vomiting, rapid breathing and grunting for three hours. She was seen at 10 p.m. Her temperature was 40° C. (104° F.), her pulse rate was 140 and her respiratory rate 30 in the minute. Her tongue was furred, her cheeks flushed and her *alæ nasi* working. Nothing abnormal was detected in the chest. She was given potassium permanganate, one injection. The next morning the temperature was normal; it rose again two days later for twenty-four hours. She went home in seven days.

Conclusion.

These case notes are perforce scrappy, for I feel I have well transgressed the limits of a short paper, but I crave your indulgence for yet a few moments.

I earnestly ask you all to give this method of attacking pneumonia a thorough trial, for I feel it is an addition to our medical armamentarium which will go far to rob pneumonia of its terrors and reduce our anxieties during what is usually a busy season.

Two more points:

1. Make sure the potassium permanganate is chemically pure. Burroughs Wellcome and Company's "Tabloid" potassium permanganate is a reliable preparation.

2. Give the first injection yourself and be sure the nurse understands what you are doing. In other words, a trusty nurse is just as necessary as always in the treatment of pneumonia.

The mode of action of this drug in pneumonia is so far unexplained and I fear I lack the originality and knowledge to offer a solution.

A FEW REMARKS ON TUBERCULOSIS AS KNOWN IN THE GOULBURN VALLEY.[1]

By F. W. GRÜTZNER, M.B., B.S.,
Shepparton, Victoria.

I DO not propose in the brief time at my disposal to attempt to range over the whole field of tuberculosis in all its protean manifestations. Indeed, I have no reason to suppose that those forms of tuberculosis which occur in the Goulburn Valley, differ very materially from similar forms in other districts of the State, but still there are one or two problems which are of interest, and one in particular in which we require the aid of our fellow practitioners in the southern districts.

We meet from time to time all but the most uncommon manifestations of tuberculosis. I do not propose to give statistics because I have found it impossible to obtain any figures that are of value, but I can broadly state that pulmonary forms of tuberculosis are common and other forms of tuberculosis are uncommon. Thus bone and joint tuberculosis which are so frequent in other parts, or were at any rate in our metropolitan hospital experience, are rarely met with in private practice and hardly more frequently amongst our Mooroopna Hospital patients.

But still what has impressed me in the Goulburn Valley after a number of years' practice, and I believe my fellow practitioners will bear me out in this, is that pulmonary tuberculosis is a common disease and far commoner than it ought to be.

Amongst those with pulmonary tuberculosis, the patient with a long-standing chronic form of the disease that drags out a course over many years is very well known to us of the Goulburn Valley. I presume the relatively favourable conditions, social and climatic, which we enjoy, tend to prolong life. Many of them at any rate lead happy, useful lives within their limitations. In regard to these people, I have had two interesting experiences quite recently.

In one patient, a woman, tubercle bacilli appeared in the sputum in large numbers after an attack of measles. Many previous attempts to detect the organism had been in vain.

The other patient, a man, contracted whooping cough from his children. During a paroxysm a slight hæmoptysis occurred. I found tubercle bacilli in his sputum a few days later. His previous history I do not know personally, but he had had a distinguished opinion to the effect that his lung condition was non-tuberculous.

Further, though actual proof is generally lacking, one soon knows many family histories in the intimate way possible in the country, which point strongly to the infection of several individuals through long association with a patient suffering from a chronic infection and we cannot but ask have we been careful enough with such patients in the past. Some at least that I have met, have had previous medical attention and have never been given any reason to believe themselves dangerous to others. Probably as a rule they are not so, but every now and then become infective, especially after an attack of some ordinary epidemic disease.

Now, why is there so much tuberculosis in the north? Our social and economic conditions are good. Most of our people are adequately fed and reasonably clad and have comfortable homes. We have no industrialism to speak of, though one previously healthy youth of unimpeachable family history became infected whilst working at the Shepparton Cannery last year. I suspect a fellow worker with a chronic cough as being the source of his infection. On the other hand quite a number of my patients have been members of typical farming families.

Our climate is not one that predisposes to infection. For most of the year it is distinctly favourable for chest conditions. Bovine tuberculosis is fairly common, perhaps much more common than we in our ignorance suppose, as evidenced by the fact that of two hundred and fifty-four pigs inspected by the Shepparton Meat Inspector during the month of March twenty-five or nearly 10% were condemned as unfit for human consumption on account of tuberculous lesions.

The possibility or at any rate the likelihood of human beings becoming infected by bovine tuberculosis is still a very debatable question, but it does not seem likely that our pulmonary infection could be traced to such a source except in rare instances. On the other hand it seems that more needs to be done before we can be sure that diseased meat is not sold for human consumption.

No, I believe it is the patient, unaware of the real nature of his malady, who is the reservoir of infection.

About two years ago I was asked to see a patient who according to her sister, had been advised "to go north" on account of chest trouble. I went and found a middle-aged woman in the last stages of consumption. She had secured board in a house where were seven other people including three young children. She had no knowledge of the real nature of her malady though her sputum swarmed with bacilli. I immediately made other suitable arrangements, but I felt very keenly about the other doctor who had evaded his responsibilities.

Happily, such flagrant instances are rare, but one quite commonly meets a patient, definitely tuberculous and sometimes infective, who has had the same loose advice "to go north" and who is ignorant of the real facts of his condition. How can such a one adequately look after himself and safeguard the other members of the community? I can only appeal to our colleagues in the southern districts to deal definitely and faithfully with their patients in this matter.

The above leads to my concluding remarks as to how far the Goulburn Valley is a suitable district for tuberculous patients. The protective influence of arid climates is fairly generally recognized. Prolonged heat is, however, very trying even to the well and more so to those suffering from a debilitating disease. Goulburn Valley patients, born and bred in the north, often do badly during the summer

[1] Read at a meeting of the Goulburn Valley Division of the Victorian Branch of the British Medical Association on May 5, 1928.

months or such is my experience. Were it not for the practical difficulties, I would send mine elsewhere for January, February and March. Then again the widespread extension of the irrigation system gives rise to a humidity relatively high and often very enervating.

Further, in a normal year our rainfall is largely a winter one and so a large proportion of our average fall of seventeen or eighteen inches occurs in June, July, August and September. In quite a number of years the winter would be regarded as wet anywhere.

In short, the climate of the Goulburn Valley can be regarded as only moderately good from the standpoint of the tuberculous patient.

In conclusion, I can only state again that pulmonary tuberculosis is much commoner in the Goulburn Valley than one would expect it to be in view of our favourable conditions. I strongly suspect a large number of infections is due to people who come here for their health. I ask our colleagues elsewhere in view of the doubtful benefit to their patients and the undoubted risk to others to weigh the matter carefully before advising those patients "to go north." Of course, I feel sure that every part of the State has its own particular problems in regard to the incidence of tuberculosis, but I have long felt that such incidence would be much less if each and every one of us followed up a little more carefully and persistently all persons reasonably suspected of being tuberculous. It is not easy to say anything new or startling on a well-worn theme, but if what I have said results in a tightening-up of our procedure, then I am sure some little good will come of it.

Reviews.

THE EXANTHEMATA.

DURING the past eight years three textbooks on infectious diseases have been brought out by British authors. The first by the late Claude Ker appeared in 1920, the second was by J. D. Rolleston and the third is by E. W. Goodall, for many years Superintendent at the Eastern and later at the North-western Hospital in London. An earlier smaller work, under the joint authorship of Goodall and Washbourn, passed through two editions; now after nineteen years the present volume is presented as a third.[1]

The book is a very fine textbook as a textbook. It lacks the charm imparted by Ker to his wonderful work, but it contains naturally the additional knowledge obtained in the last eight years. No book could be more up to date; the author has included addenda practically up to the last moment before publication. It presents the weaknesses which seem to be inherent in nearly all standard textbooks. Too much valuable space is wasted by the inclusion of historical notes, some quite dead, others useless or irrelevant. Again, the author, like his predecessors, appears to think it his duty to include numerous reports of obscure cases by obscure investigators, whose opinions and impressions are worth nothing.

Instead of these the reader would like to receive more of Dr. Goodall's experiences and observations.

The first one hundred and forty-five pages are devoted mainly to the general subjects of epidemiology and infection. A long and excellently written account of the theories of infection gives the author an opportunity of a full discussion of serum sickness, on which he is acknowledged as an authority. The best of these introductory chapters, however, is a very short, but very valuable one on rashes simulating those of the specific fevers.

Diphtheria comes first of the specific infections and is dealt with in seventy-five pages. The author is quite at home in this chapter. He emphasizes rightly the importance of clinical diagnosis in faucial diphtheria, but the diagnosis of laryngeal diphtheria is slurred over. He discusses briefly but well the problem of the carrier. Everyone must agree with his statements as to the uselessness of wholesale swabbing.

The description of the "prolonged" and "spasmodic" forms of diphtheria should be omitted as waste matter.

The question of local sprays and douches in diphtheria and scarlet fever has provoked some discussion of late and Dr. Goodall joins with several other British writers in advocating their abolition. His expressed views on the subject are rather inconsistent and are not likely to meet with general acceptance. Many patients, of course, can do without local treatment, but it is most certainly indicated in some. Dr. Goodall repeats the statement made for the past twenty years in British textbooks, that nasal feeding is always necessary in intubation cases. This is unfortunate, not only because it is inaccurate, but because Dr. Goodall is one of the very few in Britain who know anything at all about intubation. Of the last four hundred patients treated by intubation in the largest fever hospital in Australia, not one has required nasal or any other artificial feeding.

The author's great experience of scarlet fever is manifest in his description of the pathology and symptoms. He makes no mention of joint and muscle pains as an early symptom. A sentence from an earlier edition has crept in probably unobserved, to the effect that the most grave late complication of scarlet fever is diphtheria!

Cerebro-spinal fever and poliomyelitis are dealt with on conventional lines. Dr. Goodall recommends repeated ventricular puncture for the hydrocephalic state, actual or potential. He does not state whether he has obtained any good results from this procedure; they are hardly to be expected.

The chapter on epidemic encephalitis will be welcomed in this country as being the first short and yet detailed account to reach us. Of special interest is an authoritative description of the late sequelæ which we are only now beginning to realize.

Some excellent colour plates of the measles exanthem and enanthem are shown, but the chapter on whooping cough is rather disappointing.

The best part of the book is that dealing with such minor affections as rubella, erysipelas, chicken pox and mumps. Each of these occupies a separate chapter, the contents of which are beyond criticism. Mention is made of Birkhaug's recent work on the specificity of *Streptococcus erysipelatis* and its relation to *Streptococcus scarlatinæ*.

The short chapter on typhus falls into the same category. It is concise, to the point and altogether admirable.

Small pox is well and carefully described in a long chapter containing some fine plates. The author is of opinion that a good case has been made out for aërial convection of the disease. There is a full description of the relationship of small pox and vaccinia and in a following chapter the latter condition is further considered. An account is given of the intracutaneous and hypodermic methods of vaccination. The author considers that there is not yet sufficient evidence of efficient immunization by these methods.

The last remaining important chapter is that on enteric fever and it ranks with the best in the book. Hæmorrhage and perforation are given their proper place as the most important complications and their prompt recognition is insisted on. The author believes in instituting hydrotherapy early, uses moderately warm water (80° to 90° F.)

[1] "A Text-Book of Infectious Diseases," by E. W. Goodall, O.B.E., M.D., B.S. (London); Revised and in large part rewritten; 1928. H. K. Lewis and Company, Limited. Demy 8vo, pp. 734, with illustrations. Price: 30s. net.

and prefers the bath to the sponge. An excellent dietary scale is given in an appendix at the end of the volume.

A chapter on relapsing fever, which disease is unknown in Australia, has been retained and short mention also is made of anthrax and glanders.

There are five appendices. One on the cerebro-spinal fluid in health and disease is useful for rapid reference. Another of interest is on methods of lumbar, cisternal and ventricular puncture.

As a whole, the book is to be regarded as the best of its kind in the language. It is excellently printed and the major portion of the work which has been drawn from the author's personal experience, is very readable. In those parts where he has been compelled to borrow from the published work of others, as for example the chapters on the epidemic diseases of the nervous system, his style is less happy. It is a book to be very highly recommended.

THE VIEWS OF A PSYCHOLOGIST ON SEX.

"EONISM AND OTHER SUPPLEMENTARY STUDIES" is the title to the seventh volume of the Havelock Ellis's "Studies in the Psychology of Sex."[1] In this volume the author describes some of the less known types of sex abnormalities of which every medical practitioner should have some knowledge so that he can recognize them as biological abnormalities and not regard them as vice when he meets them.

Those who have read the previous volumes by the same author, will realize after they have read the seventh volume, that the same meticulous care and investigation have been exerted in the preparation of the subjects discussed in this book as in the preceding ones.

What was called "crossdressing" or "transvestism" by other authorities is called eonism after the Chevalier d'Eon who manifested this abnormality in a striking manner. This eonism or the dressing up in the garb of the opposite sex appears in both sexes and in all races of mankind. Although physically normal, these individuals are asexual in desires, so much so that in Eastern Asia the *Pu Mea* or men-women sometimes marry men rendered impotent by chronic opium smoking. The author says that eonism involves a much slighter disturbance in the balance of the play of hormones and chalones than in hermaphroditism.

Other subjects discussed are the doctrine of erogenic centres, algolagnia, scatologia, homosexuality and flagellation. The author does not consider homosexuality and algolagnia as perversions, but he regards them as symbolisms more or less autoerotic in nature and states that in the young they are natural, being manifestations of a normal and necessary play instinct, the real abnormality would be the appearance of the developed adult impulse at the infantile stage. The chapter on menstruation and the endeavour to ascertain the peak period of a woman's sex urge by means of records of dreams and acts of masturbation is disappointing. Any of those who have a weakness for reading about dreams, have one hundred of them to read in the succeeding chapter. Narcissism and kleptolagnia are fully discussed, the latter subject being of much interest to psychiatrists who frequently come across it in their practice, but find difficulty in overcoming the reticence of patients which would explain the cause of the whole trouble.

The author concludes this volume with the history of marriage. In it the author appears to think that civilization has advanced to such a stage that the present social custom of marriage is untenable. "Young folk have thrown aside the taboo which kept sex matters too sacred or too obscene—nobody quite knows what—to be known."

The views expressed about the advisability of companionate marriages which are advocated by Judge Ben Lindsey in his book, "The Revolt of Modern Youth," sound very well for a man who has no children or whose children are all grown up and settled in life, but the reader with marriageable sons and daughters is entitled to ask himself: "Would I like my son or daughter to enter into one of these companionate unions?" The majority of the readers will vote against depriving their children of the most sacred sentiment which cannot be openly expressed, that of man and wife, which they themselves enjoy. Why should the present custom be upset for the sake of those who from bad judgement, fickleness and other causes make a mess of things? Judge Lindsey sees such a number of matrimonial failures that he thinks that all marriages are the same. Dr. Ellis will be supported in his idea that a man should not be made to swear to love and cherish for all time the woman he marries because he has no control over the future. The same may be said for the woman. Let the marriage be a civil contract, blessed if desired by a priest. Let the blessing of the Almighty be invoked upon the nuptial as it is before a meal. The blessing of a meal does not guarantee the freedom from ptomaine in the potted tongue nor does the priest's blessing guarantee a happy marriage in the case of the nuptials.

Let marriage be a contract entered into by mutual agreement and dissolved according to the law of the land. All his readers will agree with the author that, although the community realizes that it has no direct concern with the sexual relationships of its members, it has a very intimate concern with the quality of the children provided by its members.

The book has a good index, the print is of large size and the contents are interesting and instructive.

[1] "Studies in the Psychology of Sex"; Volume VII: Eonism and other Supplementary Studies, by Havelock Ellis; 1928. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 539. Price: $5.00 net.

"IDIOPATHIC" HEADACHES.

"NASAL NEUROLOGY, HEADACHES AND EYE DISORDERS," by Dr. Greenfield Sluder, of Washington, is an exhaustive and stimulating treatise.[1]

It is the author's aim to describe in detail the mechanism of a class of disorder that hitherto has either been inaccurately comprehended, or, not being comprehended at all, been labelled "idiopathic."

Headache is a symptom, sometimes the only symptom, of a class of morbid conditions which present no signs. It is true that Dr. Sluder then proceeds to show that there are signs, in the guise of tender areas for the most part, by means of which a diagnosis may be made. He means, however, to exclude all headaches of which the nasal or paranasal origin may be demonstrated by gross signs or symptoms. All suppurative sinus conditions, as well as all systemic causes of headache and the various ocular disorders, are thereby excluded from this essay, except for incidental mention. His theory is that these, as it were, "unsigned" headaches (to perpetrate a pun!) are due to the anatomical involvement of various nerve trunks and ganglia.

Some of the reasons for recommending this book to all who are interested in the subject are the following: First, the anatomy, the basis of the theory, is described in detail and with clarity; one hundred and sixty-seven excellent illustrations reinforce this part of the text. Secondly, the clinical picture, differential diagnosis, prognosis and most important the treatment of each of the various syndromes or "symptom-complexes" are dealt with in great thoroughness. Thirdly, the author's long experience in this field enables him to draw freely upon actual clinical material in support of his ideas.

The exact scope of the book is indicated by a list of the main headings: (1) Vacuum Frontal Headaches with Eye Symptoms only. (2) Anterior Ethmoidal Neuralgia. (3) The Syndrome of Nasal (Meckel's) Ganglion Neurosis. (4) Hyperplastic Sphenoiditis and its Clinical Relations to the Environing Nerves. (5) Some Neurological Problems in Rhinology. (6) Surgery of the Maxillary Antrum. (7) Orbital Abscess.

This excellent work is concluded by a series of case histories and a comprehensive list of references.

[1] "Nasal Neurology, Headaches and Eye Disorders," by Greenfield Sluder, M.D., F.A.C.S.; 1927. St. Louis: The C. V. Mosby Company; Melbourne: Stirling and Company. Royal 8vo., pp. 428, with illustrations. Price: $11.50 net.

The Medical Journal of Australia

SATURDAY, AUGUST 11, 1928.

The Policy of the Association in Australia.

IN May of this year some reference was made to the proposal that a federal council should be formed within the British Medical Association in Australia and that the Branches should be asked to endow this council with executive powers. The Branches of the Association in Australia are strong bodies and each enjoys a large measure of autonomy. The strength of the individual Branches and the right of each to determine its own policy in matters of medical politics tend to weaken the authority of any body charged with the duties of acting collectively for all the Branches. The British Medical Association is a democratic institution. Each member has an opportunity of explaining his or her views on any matter affecting the medical profession and of recording his or her vote for or against any proposition. The policy of the British Medical Association is determined by the Representative Body, a parliament composed of elected representatives of every division. Since it would be impracticable to hold a general meeting of the British Medical Association every time some question with which the medical profession has some concern is raised, the expedient has been adopted of requiring the divisions to formulate their policy in accordance with the wishes of the majority of those of their members who take an interest in their profession and of making it the duty of the Representative Body to declare the policy of the whole Association in accordance with the views of the majority of the divisions. The overseas Branches are scarcely affected by the findings of the Representative Body, since the matters under consideration at the Representative Meetings are as a rule matters affecting the medical profession in the British Isles. A study of the discussions at the Representative Meetings, however, reveals that the problems under discussion in England are similar to those claiming the attention of the medical profession in Australia. Moreover, it would appear that while opinions differ widely on matters of domestic policy and on questions of details in regard to the larger problems, there is usually unanimity or something approaching it in connexion with the general principles underlying the more important medico-political movements. It must be remembered that the medical profession exists for the purpose of improving the health of the community, of combating disease and relieving pain. The British Medical Association was founded with the object of increasing knowledge concerning the human race and of the diseases to which it is liable and of regulating the practice of curative and preventive medicine in order that the profession might carry out its functions to the best advantage of the community. Unfortunately sociological measures are at times introduced which may seem to be at variance with the ideals of the medical profession. These measures may be dictated by political considerations. A government or a political party may pledge itself to a proposal of a popular nature and the medical profession may be asked to perform important duties in connexion with the proposal. If these duties interfere with the efficient service that the medical profession renders to the public, it becomes essential for the profession to define the conditions under which it would be prepared to lend its aid. The first consideration must always be the welfare of the people; the convenience and the economic interests of medical practitioners may be taken into consideration after all matters of principle have been decided.

That unanimity of opinion among the members of the British Medical Association throughout the Commonwealth is desired, is demonstrated by the repeated demand for some controlling or coordinating force of a federal character. The experience of the Representative Body is significant. It is by no means uncommon for a representative who has been instructed at a divisional debate to oppose a certain motion, to find that a totally different light is thrown on the subject when it is discussed at the Representative Meeting. There would undoubtedly be more harmony and less diversity of opinion in Australia if there were some body

analogous to the Representative Body. The members at meetings of the several Branches are not always in possession of all the facts when questions of medical politics are brought up for discussion. The same may be true even when the matters are considered by the Councils of the Branches.

The formation of a federal council would not solve the difficulty unless machinery were created for the open debate of all matters affecting the interests of medical practitioners and their relations to their patients. Members of the Branches of the British Medical Association in Australia must recognize that some innovation has become necessary and that the one that finds most favour at the present time, is a complicated one. An adequate secretariat would have to be instituted and this instrument would be expensive. The permanent office would be the link between the Branches and the federal council and both would be governed by a policy determined by the representative body. The subscriptions would be raised in order that the work might be expeditiously and effectively conducted. The central office of the British Medical Association cost over £18,000 last year and although the office deals with the whole Association, it has not so many geographical difficulties as the secretariat in Australia would have, nor are the matters with which it has to deal, more numerous than those affecting the profession in Australia. If the federal council were planned on the same lines as the Council of the Association, it would have the power of determining the subscription and it would make the necessary grants to the Branches to enable them to conduct their local affairs. It might be necessary to fix the subscription at about twice the sum charged to the members at present. Important work well done is worth paying for.

Current Comment.

FEVER IN GASTRIC AND DUODENAL ULCER.

THE symptoms by which gastric and duodenal ulcer are recognized are generally pain, occurring in characteristic relationship to the intake of food, vomiting and hæmorrhage. The last named may vary considerably in amount. It may be severe and alarming or it may be recognizable only on careful examination of the excreta. It is not commonly realized that fever is by no means an unusual manifestation. Its presence and significance have been discussed by several observers, among whom are Kroner and Leichtenstern. The former found that fever occurred in 17% of patients and the latter that fever occurred regularly in association with hæmorrhage from gastric ulcer. He regarded it as being the result of absorption, because it did not appear until two or three days after the hæmorrhage, while the patient was still constipated. In the latest edition of "Osler's Modern Medicine" Martin and Sutherland state that fever is usually absent, unless complications such as peritonitis and hæmorrhage arise. They add that often there may be a rise of 1° without complications, perhaps associated with anæmia. Sophus Bang, of Copenhagen, has recently written about the occurrence of fever in gastric and duodenal ulcer.[1] He has studied three hundred and eighty-six patients at the Municipal Hospital, Copenhagen, during the period 1922 to 1926. This number includes all patients in regard to whom a diagnosis of gastric or duodenal ulcer was made. He did not consider an isolated rise of temperature as "fever," no matter how high the temperature rose. He has included only those patients in whom the fever lasted for several days. Of the total number of patients, two hundred and seven or 51·5% manifested these fever periods. All rises of temperature were excluded when there was the slightest indication that the fever might have been due to causes other than the lesion in the stomach; this resulted in the exclusion of twenty-eight patients. The total thus became one hundred and seventy-nine and the percentage fifty. Bang accounts for the difference between his percentage and that of Kroner by suggesting that the type of lesion was different in the two sets of observations. The patients in Bang's series all suffered from acute lesions. Moreover, hæmorrhage occurred in 41·7% of his patients and only in 8% of Kroner's three hundred patients; fever is more often associated with hæmorrhage. In Bang's series hæmorrhage was present in one hundred and thirty-eight patients and fever was associated with it in one hundred and twenty-five instances, a percentage of 90·5. Where corrections were made for those who had had gelatine injections, this percentage was reduced to 87·5.

The question arises as to what is the cause of the fever. Reference has already been made to the view of Leichtenstern that it is the result of absorption from the intestine. Bang found that the highest temperature was usually present while the patients' bowels were not allowed to move. Fever often subsided with the first bowel movement, but this was not conclusive, since he tried to keep his patients constipated until the fever ceased. He further found that the fever was not proportionate to the amount of blood in the intestines and the elevated temperature sometimes persisted for a long time after the last trace of blood had disappeared from the fæces. Bang also refers to observations made on a series of patients who suffered from hæmorrhage from œsophageal varices. Although in many instances complications were present which

[1] *Archives of Internal Medicine*, June, 1928.

might have caused the fever, there were thirteen patients whose temperature was normal for from one to four days after the start of the hæmorrhage.

The temperature of the body is controlled by the heat-regulating centre in the brain. This centre may be influenced either by direct trauma or by a physical or chemical stimulus. The most common stimulus which brings about a rise in temperature, is that produced by a bacterial toxin, the hypothetical pyroxin of Hort. Other agencies include the decomposition products resulting from the breaking down of protein in the body and protein injected into the body. As far as ulcer of the stomach or duodenum is concerned, the mechanism of production is not clear in all cases. Undoubtedly there is in many instances a preceding infection of the stomach before necrosis of tissue in a *locus minoris resistentiæ* can occur. This infection of the stomach wall would provide the chemical stimulus to the heat centre. It is this mechanism which apparently finds most favour with Bang. His general conclusions are not quite clear, but he makes extensive reference to the observations of other workers on the microscopical appearances of the stomach wall in the presence of ulcer. Among those to whom he refers are Faber, Askanazy and Konjetzny, who found definite evidence of chronic gastritis in gastric ulcer. Bang goes so far as to ask whether the gastritis in gastric ulcer is not the lesion which gives rise to "the so-called symptoms of ulcer." In regard to the decomposition products resulting from the breaking down of protein, it will be remembered that Jona has shown that the subcutaneous injection of extracts of burned decomposing animal tissues (secretin) may give rise to a condition comparable to gastro-duodenal ulceration. In this connexion it is also impossible to omit consideration of the duodenal ulcer which makes its appearance after extensive burns. This ulceration is generally regarded as being due to the absorption of decomposition products. It is thus seen that conditions which have the power to influence the heat-regulating centre, may have a causative relationship to ulcer. Bang considers fever only when ulcer has already formed. It is true that he refers to a slight elevation of temperature as being the only demonstrable sign of an otherwise latent period. He has, however, apparently missed the point, brought out by Jona's work, that the condition bringing about the rise in temperature may be actually causing ulceration to appear in the stomach or duodenum. It is probable that the extracts of burned decomposing tissues contain appreciable quantities of the fever-producing toxins derived from bacteria. It may be concluded that there is probably more than one mechanism by which the temperature can be raised in a patient who is suffering from proved ulceration or in one whose symptoms point in that direction.

The final point to be considered is the practical application of these observations. Bang sees no reason why less attention should be paid to a similar rise in a patient with tuberculosis. He thinks, however, that it is doubtful whether this rise in temperature will prove of value in differential diagnosis. This is true, for radiological methods of diagnosis of gastric and duodenal ulcer have well nigh made other evidence appear to be unnecessary. At the same time no evidence, however small, should be neglected and, further, a rise of temperature in a patient with a chronic ulcer and with a previously normal temperature should lead the medical attendant to suspect secondary infection of the surface of the ulcer with a possible extension of ulceration.

THE STUDY OF THE FUNCTION OF THE PANCREAS.

SANFORD M. ROSENTHAL, of Montreal, has recently pointed out that the methods generally used to determine the activity of the external pancreatic secretion are helpful in advanced disease, but that wide normal variations detract from their usefulness in earlier diagnosis and discourage their employment in laboratory experimentation.[1] He has evolved a method which is "based on the estimation of the digestion of starch" in the upper part of the intestine. He gives starch by mouth and studies the rate at which it is broken down by following the rise in blood sugar. He holds that it is possible by administering starch in a slightly acid solution to do away with any salivary digestion and digestion will not begin until the acid gastric contents are neutralized in the small intestine. To a series of ten rabbits he gave ten grammes of uncooked starch in slightly acid solution by the stomach tube. A uniform rise in blood sugar resulted, the rise averaging sixty-two milligrammes per hundred cubic centimetres of blood. When the tests were repeated after ligation of the pancreatic duct, there was either no rise in blood sugar or an increase of from five to thirty-one milligrammes. He proposes to apply this test to man, but to use cooked instead of raw starch.

In the digestion of carbohydrates the glucose is taken from the alimentary tract by the portal vein to the liver and stored as glycogen. The blood sugar content depends on the amount of glycogen liberated by the liver and on the amount previously held in store by that organ. Furthermore, the work as carried out by Rosenthal presupposes a series of isolated foci of digestion, if such a term may be used, instead of a composite function depending on hormonal control. Addition of acid to food before such a test would certainly upset the hormonal balance. Similarly results obtained after ligature of the pancreatic duct must be accepted with caution. Rosenthal was surprised to find that relatively small quantities of starch could appreciably influence blood sugar changes, yet he claims by experiments on three rabbits to have proved that addition of acid in amounts of more than two cubic centimetres did not alter the blood sugar changes. While it is highly desirable to possess a means of estimating the pancreatic function, much more work will have to be done on a method such as that put forward by Rosenthal before it is likely to be accepted.

[1] *Archives of Internal Medicine*, June, 1928.

Abstracts from Current Medical Literature.

GYNÆCOLOGY.

The Human Uterine Gland and the Menstrual Cycle.

JAMES L. O'LEARY AND CAREY CULBERTSON (*Surgery, Gynecology and Obstetrics*, February, 1928) report the results of a series of investigations on the alterations that occur in the human uterine gland on three hundred specimens removed at various stages of the menstrual cycle. During the period of proliferation the uterine gland is characterized by its slender cylindrical shape with a lumen less than one-half the diameter of the gland. Usually the lumen is somewhat greater basally, but even at this stage irregularities are encountered. The simple tubular glands may end in slight dilatations at the base of the mucous membrane or they may divide at any point in their course, but this is uncommon except in the *lamina basalis*. Rarely two glands are seen to unite and the single trunk extends to the *tunica muscularis*. In the basal zone, branches of the second or third order may be found and they may follow a course parallel to the muscle layer. These ultimate branches are slender tubes, sometimes of considerable length. In this proliferative stage basal buds are observed, appearing first in the basal portion of the functional layer and projecting towards the surface. The later the stage in the cycle, the longer the buds usually are. As growth progresses, increase in width of the glands occurs, bifurcated glands are more common and undulations or symmetrical alveolations appear first in the basal part of the functional layer and gradually extend throughout the glands. Further changes are fortuitous and the final shape assumed by the pregravid gland is variable, depending on secretory activity and differences in growth between the stroma and gland epithelium. These glands may be circular or oval in cross section and follow a spiral or undulated course with occasional bunching of adjacent limbs upon one another at different angles. In many mucous membranes an undulated ribbon-like gland predominates. A few glands, even in the most pronounced pregravid mucous membranes, remain slender and unchanged, save for a slight rugosity of their walls. The tubules of the *lamina basalis* usually remain unchanged. During the necrosis accompanying menstruation the glands are more resistant to this necrotic process than is the stroma and as the necrosis progresses, the glands can always be observed protruding above the level of the stroma. In repair epithelialization occurs by migration of the epithelial cells from the mouths of the glands and this process is aided by the tendency of the projecting glands to bend over the denuded surface. Mitotic activity begins at once and immediately causes changes in the mucous membrane. The typical decidual gland is characterized by two features: (i) a long slender neck transversing the *stratum compactum* and (ii) an almost smooth interior in the *stratum spongiosum* which had resulted from pressure and dilatation. The original irregularities persist as projections into the lumen.

The Fallopian Tubes and So-called "Isthmospasm."

I. C. RUBIN (*Surgery, Gynecology and Obstetrics*, January, 1928) reports the results of further observations he has made on the function and structure of the Fallopian tubes by "Lipiodol" injections and the use of X rays. He concludes that the intramural portion of the Fallopian tube in the living pursues a straight course contrary to what is found in the anatomical specimens. It is capable, like the rest of the tube, of contracting and dilating. Total obliteration of its lumen is very infrequent and, when present, is part of more extensive tubal disease. "Isthmospasm" as an entity has not been definitely demonstrated, but tubal contractions can be seen with the aid of intrauterine "Lipiodol" injection and fluoroscope. The utero-tubal junction (intramural portion) appears to be the site of predilection of spasm or hypertonicity in a relatively small proportion of the patients examined. It was demonstrated by utero-tubal insufflation with the aid of the kymograph in 2% of 450 patients suffering from sterility. It can also be demonstrated by the fluoroscope and X ray film aided by "Lipiodol" and manometric control. A sphincteric action at the tubo-uterine junction has been noted in clinical and experimental observations.

Utero-Salpingography.

JULIUS JARCHO (*Surgery, Gynecology and Obstetrics*, June, 1928) reports his further investigations on utero-salpingography. The procedure is regarded as entirely safe and harmless if iodized oils are employed. It not only supplements, but supplants insufflation of gases. It gives a vivid picture of the conditions existing within the female genital tract. Its most valuable use is for the recognition of occlusion of the Fallopian tubes and the localization of the site of obstruction. In many gynæcological disturbances utero-salpingography gives exact information that can be obtained by no other means. There is a definite sphincteric action at the uterine cornu, sometimes called the tubal sphincter. The author's experience leads him to believe that the transuterine injection of iodized oil may have definite therapeutic advantages in subacute and chronic conditions of the Fallopian tubes. A case is reported in which utero-salpingography revealed dilation and occlusion of both Fallopian tubes, but in which a second utero-salpingography ten months later revealed an entirely normal appearance. There is reason to believe that in this instance the slow liberation of iodine within the Fallopian tubes had a pronounced therapeutic effect. A new syringe equipped with a manometer and specifically adapted to the transuterine injection of iodized oil is described.

The Management of Chronic Endocervicitis.

C. JEFF MILLER (*Surgery, Gynecology and Obstetrics*, March, 1928) holds that endocervicitis is an infective disease which does not tend to cure spontaneously and the sequelæ of which may be extremely serious. Every affected person, therefore, should receive prompt treatment. To be successful treatment must be directed towards the underlying pathological change rather than towards the manifestations of the disease and this pathological change cannot be clearly realized unless there is an accurate comprehension of the histology of the cervix and the lymphatic circulation of the pelvis. Local treatment is very unsatisfactory and diathermy, ionization, alcoholic injections and similar measures give only partially satisfactory results and are not free from danger. Radium often gives excellent results in selected cases, but is too dangerous to employ as a routine. Prophylaxis, especially after parturition will eliminate a large proportion of the infections. According to the conditions present, cauterization, trachelorrhaphy, the Sturmdorf operation or complete amputation must be done, although the latter procedure should be avoided whenever possible. Any surgical operation is best preceded by a preliminary course of treatment, the object being to reduce hypertrophy and inflammatory reaction in the structures and to restore the normal relation of the parts.

Squamous Epithelium in the Endometrium.

C. F. FLUHMANN (*Surgery, Gynecology and Obstetrics*, March, 1928) in reporting a case in which squamous epithelium was found in the endometrium reviews the literature on this subject. He reports that the occurrence of stratified squamous epithelium in the endometrium has been described in a number of benign conditions in adults and young children. It has been produced also experimentally. The findings in malignant disease may be grouped into four categories: (i) squamous epithelium occurring as a metaplastic process in an adenomatous carcinoma of the uterine cavity; (ii) squamous cell carcinoma coexisting with an adeno-carcinoma; (ii) squamous cell carcinoma of the *corpus* secondary to a similar growth of the *cervix uteri* and (iv) primary squamous cell carcinoma of the uterine body. Six reports have been made of unusual epithelial masses occurring among glands in hyperplastic endometrium. The lesion is considered to be due to a metaplastic change from cylindrical to squamous epithelium. The exact significance of this change cannot be determined, but there is not sufficient evidence to consider it as definitely malignant.

OBSTETRICS.

An Interparietal Fontanelle.

F. L. ADAIR AND R. E. SCAMMON (*The American Journal of Gynecology and Obstetrics*, August, 1927) report a series of observations in 598 cases in which a fontanelle occurred between the parietal bones in the sagittal suture. This fontanelle, when existent, is so irregular that lineal measurements have little value, but tracings were taken on linen with an indelible pencil. The greatest area was found to be 0·55 square centimetre and the average 0·14 square centimetre for new born infants. Among the reasons for the appearance of these abnormal fontanelles, the one which receives most support is that fontanelles may be expected at any point which is equidistant from three or more ossification centres. The authors consider that certain of them are due to duplication of the parietal ossification centres; others are formed from extensions of the great or frontal, anterior fontanelle; a few may arise from an extension of the posterior fontanelle.

Blood Transfusion in Obstetrics.

LEVY-SOLAL AND A. TZANCK (*La Presse Médicale*, December 10, 1927) describe a method of blood transfusion which allows of over two litres of blood being injected at one time and which permits the donors to be changed without change of the apparatus at one operation. There is the further advantage that the use of anticoagulants is rendered unnecessary, pure blood being taken up into a syringe and injected straight into the vein of the recipient. In large transfusions the amount of citrate of soda required to prevent coagulation would be greater than is desirable. The apparatus consists of a three-way device connecting a large syringe to three nozzles. One of these is connected to the needle in the vein of the patient, another is connected to the needle in the vein of the donor and the third to the artificial serum container. Artificial serum is run through the apparatus to exclude air and to wash it out, the syringe is then opened into the way leading to the donor and blood aspirated to fill it, the device is then turned to connect the syringe to the patient's vein and the blood run in. The artificial serum may be sent through the tubing and needles in between times to prevent the formation of clot. The donor's needle may be detached and changed without disturbing the part of the apparatus leading to the patient. The authors deal with the obstetrical indications for transfusion and the time to inject and discuss methods for determining the amount to be injected. They describe three stages in hæmorrhage. The first is the stage of toleration in which there is no effect on the pulse rate and respiration. The second stage is characterized by symptoms such as giddiness, head noises and breathlessness and is called the critical or threshold stage. The third stage is that of collapse. Transfusion to be in time must be done not later than the second stage. The authors are very much in favour of using large quantities of blood such as 500 to 800 grammes to begin with and of increasing the amount if the improvement is not sufficiently pronounced. They conclude with a plea for organizing a list of donors available at every large hospital with their blood already typed, so that they may be called upon at short notice.

External Version in Breech Presentation.

G. F. GIBBERD (*The Journal of Obstetrics and Gynæcology of the British Empire*, Autumn Number, 1927) discusses the fœtal mortality and maternal mortality and morbidity in delivery by the breech. He deprecates the very unsatisfactory statistical evidence available and the tendency to discount the dangers of breech delivery as being due to unskilful management. A series of nine thousand consecutive deliveries at Guy's Hospital is analysed. In this series 232 breech presentations were subjected to prophylactic external cephalic version during pregnancy. There were four still-born babies or 2% and three died within ten days. The malpresentation recurred in 6·5% of cases in which version had been performed between the thirty-second and thirty-fifth weeks and in 8·3% between the thirty-fifth and thirty-ninth weeks. There was only one case of presentation and prolapse of the cord. Partial separation of the placenta is another danger to be considered, but generally results from too vigorous manipulations and is more likely to occur when an anæsthetic is given. The author considers it advisable to attempt to turn every breech presentation at the thirty-second week and if the attempt fails, to make another later on. Anæsthesia should be used if success is not obtained otherwise. In a note on the technique of external version the author considers the most important step to be the production of maximum flexion of the fœtus so as to make the fœtal ovoid approximate a sphere. It is important to exclude twin pregnancy before attempting version and to disengage the breech if it is engaged. The latter may be impossible if *liquor amnii* be deficient; this necessitates bipolar version. Extended legs may seriously obstruct external version by preventing flexion of the fœtus.

Fibroids and Pregnancy.

G. HROMADA (*Wiener Medizinische Wochenschrift*, March 3, 1928) states that in most instances fibroids do not exert a harmful influence on the pregnant uterus. Myomectomy can sometimes be performed, but supravaginal hysterectomy may be necessary. Myomectomy and interruption of pregnancy were indicated in the case described by him. The patient, aged twenty-three, was a *nullipara* who was six weeks pregnant. On account of pressure symptoms she was examined and a cervical myoma was discovered. In addition she was suffering from pulmonary tuberculosis and it was considered advisable to terminate the pregnancy. After the abdomen was opened the fibroid was enucleated and the uterine fundus opened and the contents of the pregnant uterus were removed. The patient made an uninterrupted recovery.

The Gall Bladder During Pregnancy.

GEORGE M. HIGGINS (*Anatomical Record*, January 25, 1928) states that in his study of the extrahepatic biliary tracts of vertebrates in which he paid special attention to the emptying of the gall bladder, he had occasion to note that, in the pregnant dog particularly, the biliary vesicle does not empty as in the normal dog. He concludes that pregnancy in some way modifies the time and rate of the discharge of gall bladder bile.

Pregnancy and Labour in Patients with Crippled Hearts.

JOHN HAY AND ELIZABETH HUNT (*The Lancet*, February 11, 1928) present a record of fifty cases of pregnancy and parturition in women who have suffered from chronic valvular disease of the heart. From the practical point of view the most important questions discussed are the advisability of marriage, the necessity of terminating pregnancy, what method of terminating pregnancy should be used and at what stage this should be done. They also ask how can the heart be spared and what special after treatment should be administered if the patient is allowed to go to term. Tables are published showing the classification of the lesions and the ætiology, the presence or absence of hæmoptysis, the manner in which pregnancy terminated and details of the fatal cases. In discussing the advisability of resorting to Cæsarean section or induction of labour and in comparing the advantages and disadvantages of the two methods, the authors quote the opinions of several other experts, but their own view is that induction is the wiser course, unless there is a clear indication that from any cause labour is likely to be long and difficult and the viability of the child is in question. When Cæsarean section is necessary, spinal anæsthesia is recommended. In discussing the management of the puerperium the authors lay stress on the importance of a prolonged rest. They consider that lactation is beneficial rather than otherwise. Particular attention must be given to the prevention of obesity and anæmia should be watched for and treated. As regards the question of marriage and pregnancy, the authors hold that as long as the cardiac reserve is good, as long as the response to effort is satisfactory and there is no undue enlargement of the heart, the presence of valvular disease is no bar either to marriage or pregnancy. After the first pregnancy the position is easier to determine, as, if there is a history of cardiac distress or prolonged convalescence, it may be necessary to forbid pregnancy. Borderland conditions present the greatest difficulty and in these circumstances particular attention must be given to any pelvic abnormality.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE GOULBURN VALLEY SUBDIVISION OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at Mooroopna on May 5, 1928, DR. J. C. WIGHT, the President of the Subdivision, in the chair.

Fifty Years' Medical Practice.

DR. J. W. FLORANCE read a paper entitled: "A Fifty Years' Retrospect of Medicine and Surgery" (see page 173).

DR. J. C. WIGHT said that he had been associated with Dr. Florance since 1894 and that Dr. Florance and the late Dr. Healy had helped him in his early days.

DR. J. B. DONALDSON, senior, of Linton, referred to his long friendship with Dr. Florance. Dr. Donaldson said that he was a teacher's son and had envied Dr. Florance his knowledge before he (the speaker) took up medicine. He could remember the days of ovariotomy when the patient was treated after operation by flushing out the peritoneum with carbolic acid lotion. Most of these patients had died. These were the days fo "laudable pus" and operating coats stiff with the coagulated blood and pus of former operations; when abdominal surgeons were known as "belly-rippers" and young doctors were precipitated into practice often without experience as house surgeons.

In his days of busy practice Dr. Donaldson had had at least three pairs of ponies in constant use with more in reserve if required. He had driven six miles in nineteen minutes. Those were the days!

Manganese Treatment of Pneumonia.

DR. F. S. COOMBS read a paper entitled: "Some Remarks on Manganese Treatment of Pneumonia" (see page 175).

DR. A. E. TAYLOR, of Dandenong, said that the original article in *The British Medical Journal* had recommended the administration of thyreoid gland in conjunction with the colonic irrigation by potassium permanganate solution, but the former had since been discarded. He suggested that the latter might act as a detoxicating agent in the same way as when given by mouth in cases of morphine poisoning. In his practice also the potassium permanganate treatment had been uniformly successful.

DR. ANNIE L. BENNETT said that several patients had been treated by this method at the Mooroopna Hospital during the last nine months, but the results had not been encouraging.

DR. N. J. PARKER, of Numurkah, said that he had treated four patients suffering from pneumonia by this method and three had died. All these patients had been very seriously ill and might not have been good subjects to select for this treatment.

DR. W. H. GODBY, of Wangaratta, said that he had had great difficulty in getting the patients to retain the permanganate lotion and he thought that possibly it had been given too cold.

Tuberculosis in the Goulburn Valley.

DR. F. W. GRÜTZNER read a paper entitled: "A Few Remarks on Tuberculosis as Known in the Goulburn Valley" (see page 178).

DR. H. FLECKER thought that the high incidence of pulmonary tuberculosis in the Goulburn Valley was not due to any increased risk of infection, but to the undue prevalence of dust in summer time, particularly silicious dust.

DR. LESLIE S. LATHAM said that he had been interested in Dr. Grützner's paper. He thought that special investigation would be required to establish whether it was a fact that the incidence of pulmonary tuberculosis in the Goulburn Valley was higher than in similar communities in other parts of the State.

Armies from tuberculosis-free countries showed a low incidence of pulmonary tuberculosis, when first leaving their home country, but after mixing with infected peoples, the incidence of tuberculosis became relatively high. Isolated communities were possibly more susceptible to infection imported from outside and dust was also a possible means of spreading infection. There was always a danger of a cross infection when patients travelled from the city to the country and *vice versa*. Patients visiting the city to seek medical advice and staying at hotels, must be a source of danger to others. They were not admitted to private hospitals where they could be made comparatively safe. This prohibition should be modified.

DR. J. A. KENNEDY congratulated Dr. Grützner on his paper. He thought that the incidence of pulmonary tuberculosis had increased in recent years in the Goulburn Valley and this increase might be partly owing to the number of affected persons sent north from Melbourne and other districts to recover. Tuberculosis occurred among returned soldiers and immigrants whose lesions probably had been quiescent when they were examined by the authorities, but had become active after some years of hard work. In the case of soldiers this illness was often not treated by the Repatriation authorities as active tuberculosis and no steps were taken to segregate the patients. Many such patients were living under bad hygienic conditions.

Ulceration of the Axilla.

DR. ANNIE L. BENNETT, for Dr. J. H. Blackburn who was unable to be present, showed a man, aged forty years, a butcher at a bacon factory, who was suffering from extensive ulceration of the right axilla and adjacent chest wall of six years' duration. The onset had been with an abscess in the axilla which was incised and discharged pus. The incision, however, had not healed and when the patient was first seen at the hospital, he had had a hard gland in the axilla nearly as large as a billiard ball. This mass had been adherent to the skin and deep tissues with a sinus discharging thin pus. The sinus had been opened up and curetted, but the skin at the edges had broken down and gradually the ulceration had spread over the chest wall. On the assumption that the condition was a tuberculous one, a course of therapeutic injections of old tuberculin had been given commencing with small doses and gradually increasing every third to seventh day according to the reaction.

With the smaller doses there had been only a slight reaction, focal and general, and the condition had definitely improved, but eventually it had relapsed. On both occasions with fairly large doses there had been a severe reaction and the healing edges had broken down again. About a year previously the patient had procured some "turtle serum" from Germany, which had been administered hypodermically with no improvement. In the available literature regarding this serum the dosage was not clearly indicated and it was not recommended for skin tuberculosis. Treatment with sunlight had been tried first to the body generally and then to the area of ulceration. The latter had seemed to cause improvement for a time. Various local antiseptic dressings had been applied, including continuous Carrel-Dakin irrigation, mercurial preparations, normal and hypertonic saline solutions and weak potassium permanganate solution. The last named had seemed to be the most suitable. By mouth potassium iodide up to two grammes daily, sometimes combined with mercury, had been given. Collosal iodine, two cubic centimetres, thrice daily and arsenic had also been tried without success. The Wassermann test had failed to show any deviation of complement.

DR. J. NEWMAN MORRIS said that the condition could be caused by a chronic infection in a patient of low resistance. He had seen a similar condition in a patient whose infection had started as sepsis in the arm, spreading through the axillary glands and thence into the subcutaneous tissues. Dr. Blackburn's patient had had originally a septic focus in the elbow and Dr. Morris was of the opinion that the present condition was one of chronic sepsis. Dr. Kanavel had recommended cessation of special treatment with local antiseptics in such cases with special attention to the general health of the patient.

MR. W. A. HAILES said that he had had experience of three similar cases. One of the patients had been treated at the Melbourne Hospital, but had continued to go down hill and was at the Austin Hospital. The second patient's lesions had shown even less tendency to heal. There had

been a subphrenic abscess which had been opened and the infection had spread by ulceration from the site of the drainage tube. Mr. Hamilton Russell had been called in consultation and had suggested that the edges of the ulcerated area should be excised and the base curetted and later skin grafted. This had been done and the treatment seemed to have been successful and Mr. Hailes said that in future he would not hesitate to act before the ulceration had spread so far as in the cases he had described. He thought that the present lesion should be investigated to exclude the presence of chronic actinomycosis.

DR. H. FLECKER recommended the therapeutic use of X rays which had been successful in a similar case at the Austin Hospital. Failing this, ultra-violet light irradiation might arrest the spread of ulceration.

Basal-celled Carcinoma.

DR. J. A. KENNEDY showed a man of sixty-five years who had been admitted on April 12, 1928, complaining of ulceration of the legs which had been present for twenty years. A few days before admission the ulcers had become inflamed and painful. His general health had not been good, but there had been no loss of weight or abnormal bowel or urinary symptoms. There was no history of tuberculosis or other serious illness, but the patient's memory was not good. Physical examination revealed general thinness, no abnormal eye signs, a furred tongue, carious teeth, the heart with apex beat in the fifth intercostal space ten centimetres from the middle line. There was no right cardiac dulness. The heart sounds were faint, but no bruit was detected. Examination of the lungs revealed a poor air entry and there were a few crepitations audible at the base of both lungs.

The liver was not enlarged and no abdominal tumour was felt. There was a small ulcer in the left suprapubic region. The whole left leg was swollen and painful and there were numerous small round ulcers in the distal third of the leg with sharp cut edges and sloughing bases. There was one ulcer over the head of the fibula. There was one large single ulcer measuring seven by five centimetres on the medial side of the distal third of the right leg with indolent edges and a purulent discharge. There were no obvious varicosities on the legs. In the right axilla there was an area of ulceration measuring five by three centimetres over the anterior axillary fold with an undermined edge and a base of pale granulation tissue with a thin purulent discharge. The Wassermann test had failed to yield a reaction and the urine contained neither sugar nor albumin.

DR. J. NEWMAN MORRIS said that he thought the axillary lesion was probably a malignant condition of the skin and that a microscopical examination should be made.

MR. W. A. HAILES had no doubt that this lesion was a basal-celled carcinoma. He said that Dr. Molesworth, of Sydney, had pointed out the resemblance of this form of neoplasm to Paget's disease of the breast. The blocking of the lymphatic drainage caused œdema over the growth. These carcinomata were of slow growing type and should be excised with a half-inch margin. It was often not necessary to remove the corresponding lymphatic glands, a procedure which was a matter of doubt in the present case.

Bacterial Endocarditis.

DR. W. ARMSTRONG showed a male patient, a farmer, fifty-six years of age, who had been admitted on April 15, 1928, complaining of dyspnœa and loss of weight of five weeks' duration. About a month before admission he had consulted a doctor because of pain in the left side of the chest and faintness. Examination had then revealed a liver enlarged three fingers' breadths below the costal margin; the pulse had been regular, but a loud aortic systolic murmur had been heard and there had been friction crepitus heard in the left axilla. The pain had disappeared and the aortic murmur had diminished, but he had lost much weight. His temperature had run an intermittent course, rising to 37·8° C. A blood film examination had revealed nucleated red blood corpuscles and the hæmoglobin content had been 70%. The patient had developed a cough and signs of congestion in the left lung. The family history was unimportant except that a sister had died from Addison's anæmia. The patient had been treated with liver feeding, but had made no progress. On admission to hospital he had still been thin and suffering from dyspnœa, his appetite had been good, his bowels regular with normal motions. He had had no abnormal urinary symptoms, but had had a slight cough. Examination revealed a wasted, middle-aged man, not in any pain. His complexion was sallow and his conjunctivæ jaundiced. His pupils were equal and reacted to light and accommodation. The tongue was clean and moist. All his teeth had been extracted twelve months before on account of pyorrhœa and he had had tonsillitis at the same time. The pulse was regular, of good volume and normal tension. The apex beat of the heart was in the fifth space 8·75 centimetres from the midline and there was no right cardiac dulness. There were a presystolic thrill and murmur at the mitral area.

His lungs showed no signs of disease. His liver was not enlarged, his spleen was just palpable and no abdominal tumour was felt. There were no abnormal neurological signs. His urine was of specific gravity 1010, alkaline and otherwise normal. No tubercle bacilli had been detected in his sputum. The Wassermann test had yielded no reaction.

On blood culture organisms of the paratyphoid group had been grown. A blood examination had revealed: Red blood corpuscles per cubic millimetre 4,560,000; white blood corpuscles per cubic millimetre 5,600. No abnormal cells had been seen. Transillumination of his nasal sinuses had revealed no abnormality.

The Widal test had been applied and no specific agglutination for the typhoid group had occurred on April 18, 1928.

Dr. Armstrong regarded the condition as one of subacute bacterial endocarditis. The patient had improved in hospital. A slight amount of exophthalmos, noticeable on admission, had also improved and his general improvement had cast some doubt on the diagnosis.

DR. R. P. MCMEEKIN, in discussing Dr. Armstrong's patient, said that he was not prepared to make a diagnosis, but the condition was possibly a paratyphoid infection complicating an old-standing cardiac lesion. The spleen could be felt. The jaundice might have been toxic or might have been congestive due to backworking. The diagnosis of subacute bacterial endocarditis should not be excluded because the patient was improving. The way in which such patients proceeded to a fatal termination of their illness varied considerably. There might be periods of improvement with relapses which might continue for as long as four years. The patient should be watched with this possibility in mind. It was not much use to take a further blood culture in an afebrile period.

DR. LESLIE S. LATHAM agreed with Dr. McMeekin in laying emphasis on the possibility of there being a superimplantation of an infection on an old cardiac lesion. The fact of the spleen being palpable suggested the possibility of an ordinary paratyphoid infection, but was also consistent with subacute bacterial endocarditis. There was a suggestion of hyperthyreoidism with exophthalmos and von Graefe's sign. Dr. Latham did not remember having seen any patient whose endocarditis was caused by the paratyphoid organism.

DR. J. W. FLORANCE said that he had had a friend who contracted paratyphoid fever at the war. He had later become febrile with pain and tenderness over the gall bladder area. He had been treated at the Melbourne Hospital, but had died of a complicating pneumonia. In such circumstances Dr. Florance thought that draining the gall bladder should be considered.

DR. A. E. TAYLOR thought that antitoxin serum might be of use in combating the paratyphoid infection, but could not see how vaccines would help.

DR. MCMEEKIN, in commenting on Dr. Taylor's remarks, said that in some cases of typhoid and paratyphoid fever the specific vaccines did do good and produced a dramatic improvement with hastened defervescence.

DR. W. W. S. JOHNSTON suggested that the Widal test should be done again. No agglutination might originally have occurred, but the result of the test might then be positive. If no agglutination still occurred, he would be

doubtful whether the condition could be one of paratyphoid infection.

DR. W. GODBY referred to the use of typhoid vaccine. He had used intravenous injections of vaccine with good results, but in one instance, characterized by epistaxis, the patient had died within two hours of the vaccine injection. One other case of sudden death had occurred under similar conditions.

DR. A. P. DERHAM referred to the history of a girl of twelve years who had been desperately ill with typhoid fever and pneumonia. A vaccine of fifty million typhoid bacilli had been administered intravenously and the patient had died about six hours later.

Since then Dr. Derham had used typhoid vaccine intravenously in treating several children in three or four successive doses of ten millions repeated every second or third day. The results had been good and convalescence seemed to have been hastened. Children with typhoid fever, however, so often did well that it was not easy to prove the value of specific vaccination.

Syphilis and Glycosuria.

DR. R. O. MILLS showed a woman, aged thirty-nine years, who had been admitted to hospital on April 18, 1928, complaining of ulceration of the right leg of three years' duration. During the previous few days her leg had been very inflamed and painful. She had been short of breath on exertion since an attack of pneumonic influenza in 1919. Her ankles had swollen and her appetite, usually good, had been poor for the last few weeks. She had had no excessive thirst, the action of her bowels was regular and there were no abnormal urinary symptoms. She had had rheumatoid arthritis for years and had had four miscarriages. Examination revealed a very stout woman, with her thyreoid gland symmetrically enlarged. Both wrist joints were partly ankylosed and all her fingers were deformed and more or less ankylosed. Her pupils were equal and reacted to light and accommodation. The tongue was furred, the teeth good. There had been ulceration of the anterior pillars of the fauces chiefly on the right side and on the hard palate. The heart was enlarged, the pulsation at the apex beat was not palpable, but by percussion was estimated to be in the sixth intercostal space, eleven centimetres from the midline. The rhythm was regular and no murmurs were heard. No signs of pulmonary disease were detected. The liver was not enlarged. There were no abnormal neurological findings. There were large ulcers on the dorsum of the right foot and the posterior aspect of the right leg with foul discharge and "wash leather" sloughs. The urine was loaded with sugar, but there was no diacetic acid or acetone. The Wassermann test had been performed and no deviation of complement had occurred.

DR. MILLS considered that the glycosuria might have been not a true diabetic type, as it had disappeared rapidly with a diet poor in carbohydrates. He suggested that it might have been associated with septic absorption or with thyreoiditis in association with a general endocrine upset. The ulceration of the throat had also healed up in a few days after the administration of moderate doses of perchloride of mercury.

DR. J. F. WILKINSON said that the chief question was: "Was the patient diabetic?" The question of syphilis should also be considered and further investigated.

He recommended that the patient be given fifty grammes of dextrose and that a blood sugar curve be taken. If she was found to be diabetic, there was no hope of the ulcers healing unless the blood sugar content were reduced, not only to normal, but down to the verge of a hypoglycæmic reaction. He had recently treated a patient from the New Hebrides with "Insulin" tablets by mouth. These were prepared by Burroughs, Wellcome and Company and were quite as effective as the liquid preparation given hypodermically. This patient had sustained an injury to her toe causing ulceration which had healed up on "Insulin" treatment.

Another patient of Dr. Wilkinson had an ulcer under the big toe which had spread upwards two or three inches with perforation and sinus formation. This had also healed up with drastic "Insulin" treatment. In a third patient gangrene of the foot had cleared up on "Insulin" treatment, had become inoffensive in a few days and had healed up in a few weeks.

Dr. Wilkinson emphasized the necessity of keeping these patients on the verge of hypoglycæmia during the healing process. The tendency was in the direction of conservatism in diabetic ulcerations and amputation was seldom necessary.

DR. J. W. FLORANCE said that he had had a patient with gangrene of the foot and optic neuritis due to diabetes. The blood sugar curve had confirmed this diagnosis and the administration of "Insulin" had led to recovery. The patient had lived a normal life for three years, but had neglected his diet and had eventually died with ulceration of the foot.

MR. W. A. HAILES suggested a syphilitic origin for the type of ulceration present in Dr. Mills's patient, the lesions spreading in semicircles. He had decided to take Dr. Wilkinson's advice in diabetic gangrene, as it appeared that it was not sufficient merely to keep the patient sugar-free.

DR. W. H. GODBY expressed doubt as to the reliability of the result of the Wassermann test in this patient and of the Wassermann test in general. He had sent two specimens of the same patient's blood at the same time to the University laboratory and the Walter and Eliza Hall Institute respectively. The former had been reported as not yielding a reaction and the latter as "P+++."

DR. R. P. MCMEEKIN said he knew of one case in which the same sample of blood had been divided into two parts and both had been sent to the same laboratory labelled with different names, for a Wassermann test. The result in one case was positive, in the other "no reaction." He considered that the Wassermann test in Dr. Mills's patient should be repeated by the ice box method.

DR. A. P. DERHAM agreed with the opinion that the ulceration was probably syphilitic, especially that on the fauces, with possibly a diabetic factor in addition. In further illustration of the unreliability of the Wassermann test, he quoted two series each of ten successive blood samples from children, most of whom had syphilitic lesions or suspicious family histories. From each child five cubic centimetres of blood had been obtained and divided into two equal parts. By arrangement with the Directors one half had been sent to the Melbourne University Laboratory and the other to the Commonwealth Serum Laboratory and there tested for the Wassermann reaction by the ordinary and the ice box methods. In the first ten cases the University series tended towards no reaction and the Commonwealth series towards the positive side as compared with clinical expectations and in the second ten cases a week later the position had been reversed. These remarkable results were only a further proof that the results of the Wassermann test must be interpreted only as one point in evidence in the light of other clinical findings and family history. Dr. Derham proposed to publish the results more fully at a later date.

DR. F. W. GRÜTZNER showed a woman, aged fifty-seven, whose left leg had been painful, blue and swollen for six weeks. She had been excessively thirsty and had had scalding on micturition.

Diabetic Gangrene.

On examination she was found to be thin and weak, her tongue had had raw beef appearance of diabetes. No abnormal signs had been elicited in the heart, lungs or abdomen. Her left foot had been gangrenous in its distal half and some loose pieces of metatarsal bones had fallen out when it was handled. Her urine had contained sugar, diacetic acid and acetone. She had been given appropriate diet and ten units of "Insulin" hypodermically three times a day. Her urine had become sugar-free in three days, the foot had become less offensive and the base of the ulceration had assumed a more healthy appearance. Her urine had remained sugar-free on a diet providing 1,800 calories and her general condition had improved. The interest of the case lay in such a serious condition existing unsuspected by the patient and in her rapid improvement after treatment.

Dr. Grützner asked for opinions as to what would happen to her truncated foot and what should be done to improve its usefulness.

In discussing this patient Mr. W. A. Hailes said that he had seen a similar lesion in the hand operated on

successfully by Mr. Fay Maclure at the Alfred Hospital. The condition had been one of severe injury or burns and Mr. Maclure had skinned the useless fingers and turned the flaps down over the raw surface, removing the remains of the fingers.

In the present instance Mr. Hailes recommended that the useless toes should be removed and the surplus skin turned down over the raw surface of the foot.

ANNUAL MEETING.

THE ANNUAL MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Darling Building, University of Adelaide, on June 28, 1928, DR. R. H. PULLEINE, the President, in the chair.

ANNUAL REPORT OF THE COUNCIL.

DR. R. H. PULLEINE presented the Annual Report of the Council. The report was adopted on the motion of Dr. St. J. Poole, seconded by Dr. F. Le Mesurier.

Annual Report of the Council for the Year ending June 30, 1928.

Election.

At the Annual Meeting held last June, the following were elected:

President: Dr. R. H. Pulleine.

Vice-President: Dr. H. Gilbert.

Honorary Medical Secretary: Dr. E. Britten Jones.

Honorary Treasurer: Dr. W. A. Verco.

Members of Council: Dr. C. E. C. Wilson, Dr. P. T. S. Cherry. Dr. G. H. B. Black, Dr. M. W. Sprod, Dr. A. K. Gault and Dr. R. E. Magarey remained for another year.

Federal Committee Delegates: Dr. H. S. Newland and Dr. Bronte Smeaton.

Library Committee: Dr. H. S. Newland, Dr. A. A. Lendon, Dr. F. H. Beare, Dr. W. Ray and Dr. E. Britten Jones.

At the first Council Meeting held in July, 1927, the following Subcommittees were appointed:

Scientific: The President and Dr. H. S. Newland, Dr. W. A. Verco, Dr. G. H. B. Black and Dr. E. Britten Jones (Convener).

Lodge and Ethical: The President and Dr. M. W. Sprod, Dr. A. K. Gault, Dr. H. Gilbert and Dr. P. T. S. Cherry (Lay Secretary, Convener).

Post-Graduate: The President and Dr. H. S. Newland, Dr. W. A. Verco and Dr. E. Britten Jones (Convener).

Revision of Rules: The President and Dr. H. S. Newland and Dr. Bronte Smeaton (Lay Secretary, Convener).

Parliamentary Bills, Medico-Political and Public Health: The President and Dr. M. W. Sprod and Dr. C. E. C. Wilson.

Special Lodge: The President and Dr. H. H. E. Russell, Dr. E. A. Brummitt, Dr. F. Poole, Dr. M. W. Sprod and Dr. A. K. Gault (Lay Secretary, Convener).

Meetings.

Nine meetings were held during the year, two of these being clinical evenings at the Adelaide Hospital and Children's Hospital respectively, and one meeting was held at the Mental Hospital, Parkside. The attendances throughout were satisfactory.

The following programme was carried out:

1927—July: Paper. Dr. Frank S. Hone, on "Inflammatory Diseases of the Colon." The following also took part in the discussion: Dr. J. Corbin, Dr. F. H. Beare, Dr. C. T. Ch. de Crespigny, Dr. L. E. Lindon, Dr. Helen Mayo.

August: Discussion on "The Diagnosis and Treatment of Certain Types of Uterine Hæmorrhage," opened by Dr. J. Bernard Dawson and followed by Dr. T. G. Wilson, Dr. Rupert Magarey and Dr. Rowland Beard.

September: Clinical Evening at Adelaide Hospital.

October: Clinical Evening at Children's Hospital.

November: Paper. Dr. W. Ray, on "Sinusitis as a Cause of Respiratory and Alimentary Disorder." Dr. D. R. W. Cowan, Dr. F. N. Le Messurier, Dr. F. H. Shorney, Dr. H. W. Jay and Dr. W. Sangster also took part.

1928—February: Discussion on "Incidence, Diagnosis and Treatment of Syphilis," opened by Dr. G. H. Burnell, followed by Professor J. B. Cleland, Dr. R. F. Matters and Dr. R. V. Storer.

March: Meeting at Mental Hospital. Paper, Dr. M. H. Downey, "Dementia Præcox." Demonstration of cases by Dr. H. M. Downey and Dr. A. J. Meikle.

April: Discussion on "Tumours of the Cerebello-Pontine Angle," opened by Dr. C. T. Ch. de Crespigny, followed by Dr. H. S. Newland and Dr. R. H. Pulleine.

May: Listerian Oration, Professor H. H. Woollard on "Capillary Endothelium."

Council.

The Council met on thirteen occasions, the attendances being as follow:

Dr. E. Britten Jones	13
Dr. G. H. B. Black	13
Dr. A. K. Gault	12
Dr. R. H. Pulleine	11
Dr. P. T. S. Cherry	11
Dr. C. E. C. Wilson	11
Dr. M. W. Sprod	11
Dr. W. A. Verco	10
Dr. H. Gilbert	10
Dr. Bronte Smeaton	9
Dr. H. S. Newland	9
Dr. R. E. Magarey	7

Scientific Subcommittee.

The Scientific Subcommittee met three times, the attendances being:

Dr. H. S. Newland	3
Dr. E. Britten Jones	3
Dr. W. A. Verco	2
Dr. G. H. B. Black	2
Dr. R. H. Pulleine	2

Post-graduate Subcommittee.

The Post-graduate Subcommittee met once. Dr. H. S. Newland, Dr. W. A. Verco, Dr. C. T. C. de Crespigny (co-opted) and Dr. Britten Jones were present.

Lodge and Ethical Subcommittee.

The Lodge and Ethical Subcommittee met three times, the attendances being:

Dr. R. H. Pulleine	3
Dr. P. T. S. Cherry	3
Dr. H. Gilbert	2
Dr. A. Kyle Gault	2
Dr. M. Sprod	1

Special Lodge Subcommittee.

The Special Lodge Subcommittee was called together on twelve occasions in connexion with the New Model Lodge Agreement, the attendances being:

Dr. H. E. Russell	12
Dr. A. Kyle Gault	12
Dr. F. St. J. Poole	12
Dr. R. H. Pulleine	11
Dr. E. A. Brummitt	9
Dr. M. Sprod	9

Federal Committee.

Dr. H. S. Newland and Dr. Bronte Smeaton again represented the Branch on the Federal Committee and both attended the two meetings held in Sydney and Melbourne respectively.

Representation on Boards.

Medical Board of South Australia: Dr. H. H. E. Russell was nominated as a Member of the Board.

Representative at Annual Meeting in England.

Dr. H. Swift has been nominated by Council as Delegate representing the Branch at the Annual Meeting of the Association to be held at Cardiff in July.

Membership.

The membership of the Branch now stands at 411, being a net increase of two for the period under review.

The number of new members elected was 19, the balance representing the difference between transfers "in" and "out" after deducting deaths.

It is with much regret that the deaths are recorded of Dr. William Blackney and Dr. C. H. Hill.

Listerian Oration.

This year the Council invited Professor H. H. Woollard, M.D., to deliver the Listerian Oration. Professor Woollard chose for his subject "Capillary Endothelium" and ninety members were present. The Council desires to thank him officially for his address.

Post-graduate Work.

Arrangements have been completed with the Adelaide Hospital, Adelaide Children's Hospital and Queen's Home (Incorporated) to enable medical practitioners to attend the clinical demonstrations, ward rounds, out-patients' clinics and operations, and lists will shortly be available showing the times the various honoraries do ward rounds, attend out-patients' clinics and operate.

Formation of Sections.

During the year the Council approved of the formation of the Section of "Clinical Medicine."

National Insurance.

At the Council Meeting held on September 1 last, Senator J. D. Millen attended and addressed members of the Council and Vigilance Subcommittee on the subject of national insurance, setting out the views of the Federal Government.

New Model Lodge Agreement.

The Special Lodge Committee has spent considerable time in meetings and in conference with the Friendly Societies' Association, but unfortunately no finality has been reached up to the present. The Council recognizes the desirability of finalizing the agreement as soon as possible, but the offer made by the Friendly Societies could not be recommended to members. Negotiations are still proceeding and it is confidently expected they will shortly be completed satisfactorily.

Darling Library, Adelaide University.

The attention of members is drawn to the facilities that are available to them as members of the British Medical Association. The medical library is at their disposal and books may be taken out, if so desired.

Appointment of Lay Secretary.

The Council during the year received with regret the resignation of Mr. G. W. Bennett, who had been Lay Secretary of the Branch since July 1, 1926.

Applications were called for the position and from 151 applicants Mr. Walter C. Dobbie was appointed and took over his duties on March 19, 1928.

(Signed) R. H. PULLEINE,
President.

FINANCIAL STATEMENTS.

DR. W. A. VERCO, the Honorary Treasurer, presented the Financial Statements for the year ended December 31, 1927. The Financial Statements were adopted on the motion of Dr. St. J. Poole, seconded by Dr. Davey. The Financial Statements are printed below.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED DECEMBER 31, 1927.

EXPENDITURE.

	£ s. d.	£ s. d.
British Medical Association—		
Subscription Account		314 18 6
Payment for THE MEDICAL JOURNAL OF AUSTRALIA		247 0 0
Depreciation on Furniture		17 19 5
General Expenses—		
Delegates' Expenses	12 13 6	
Legal Expenses	9 14 0	
Listerian Oration	10 13 6	
Exchange	2 1 8	
Telephone Account	22 18 8	
Audit Fees	7 7 0	
Subscription to Australasian Association for the Advancement of Science	3 0 0	
Printing and Stationery	28 9 11	
Duty Stamp	4 0 4	
Postages and Telegrams	30 18 8	
		131 17 3
Sundry Payments		29 4 0
Salary	450 0 0	
Office Rent	50 0 0	
		500 0 0
Lister Medal, presented 1927		1 14 2
Federal Committee—		
Capitation Grant		38 16 0
Transfer to General Fund Account		245 11 5
		£1,527 0 9

INCOME.

	£ s. d.	£ s. d.
Subscriptions Received—		
Country Members	374 8 0	
City Members	814 16 0	
		1,189 4 0
Subscriptions Due and Unpaid		317 1 0
Interest		20 0 0
Profit on Medical Certificate Books		0 15 9
		£1,527 0 9

GENERAL FUND ACCOUNT.

	£ s. d.		£ s. d.
1927.		1926.	
To Library Fund Account (being 189 City Members' Subscriptions at 10s. each) ..	94 10 0	By Balance Brought Down	1,559 5 6
„ Balance Carried Down	3,140 6 11	1927.	
		„ Shares Account British Medical Hall Company, Limited	1,430 0 0
		„ Income and Expenditure Account (transfer of surplus for year)	245 11 5
	£3,234 16 11		£3,234 16 11

LIBRARY FUND ACCOUNT.

	£ s. d.		£ s. d.
1927.		1926.	
To University of Adelaide Library Grant, Paid	50 0 0	By Balance Brought Down	308 5 10
„ Balance Carried Down	362 18 4	1927.	
		„ Savings Bank Interest	10 2 6
		„ Transfer from General Fund Account (being 189 City Members' Subscriptions at 10s. each)	94 10 0
	£412 18 4		£412 18 4

BALANCE SHEET AS AT DECEMBER 31, 1927.

LIABILITIES.	£ s. d.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
Subscriptions Paid in Advance	8 0 0		Plant, Fittings	179 13 11	
Dinner Account Surplus	1 8 5		*Less* Depreciation	17 19 5	
Sundry Creditors	76 6 0				161 14 6
Library Fund Account	362 18 4		Shares Account—		
General Fund Account	3,140 6 11		Commonwealth Loan (5%, 1948, Face Value £400) Cost	403 12 0	
		3,588 19 8	Shares, British Medical Hall Company, Limited	1,850 0 0	
					2,253 12 0
			Deleneascope (Library Fund) ..		55 2 10
			Lister Medals and Dies on hand		18 11 8
			Savings Bank (Library Fund)		224 10 6
			British Medical Hall Company, Limited—		
			Loan Account		450 0 0
			Subscriptions Owing		324 3 6
			Stocks—		
			Medical Certificate Books ..	7 12 4	
			Hospital Report Forms ..	1 3 3	
					8 15 7
			Cash Balances—		
			Bank Balance	60 13 6	
			Cash in Hand	32 15 1	
				93 8 7	
			Less Overdrawn Petty Cash	0 19 6	
					92 9 1
		£3,588 19 8			£3,588 19 8

W. A. VERCO, *Honorary Treasurer.*
WALTER C. DOBBIE, *Lay Secretary.*

We have examined the Accounts and Books of the South Australian Branch for the year ending 31st December, 1927, and certify that the above Income and Expenditure Account and Balance Sheet as on the said 31st December, 1927, are in our opinion correct.

MUECKE, WILTSHIRE AND COMPANY,
Auditors.

Adelaide, June 19, 1928.

INDUCTION OF PRESIDENT.

DR. C. T. C. DE CRESPIGNY proposed a vote of thanks to the retiring President, Dr. R. H. Pulleine, and to the members of the Council. The proposal was seconded by Sir Joseph Verco and carried. Sir Joseph Verco congratulated the incoming President, Dr. John Corbin, who took the chair.

ELECTION OF OFFICE-BEARERS.

The following office-bearers were elected for the ensuing year:

President: Dr. J. Corbin.

Vice-President: Dr. H. Gilbert.

Honorary Medical Secretary: Dr. E. Britten Jones.

Honorary Treasurer: Dr. W. A. Verco.

Members of Council: Dr. C. F. Drew, Dr. E. A. H. Russell, Dr. R. J. Verco, Dr. J. B. Gillen.

Delegates to the Federal Committee: Sir Henry Newland, Dr. Bronte Smeaton.

Library Committee: Sir Henry Newland, Dr. A. A. Lendon, Dr. F. H. Beare, Dr. W. Ray, Dr. E. Britten Jones.

PRESIDENT'S ADDRESS.

DR. R. H. PULLEINE, the retiring President, then read his address (see page 162).

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

O'Donoghue, Francis Martin, M.B., 1926 (Univ. Sydney), 212, Glebe Road, Glebe Point.

Oxenham, Alan Francis, M.B., Ch.M., 1925 (Univ. Sydney), "The Plaza," Carabella Road, Kirribilli.

Harbison, Victor Roy, M.B., B.S., 1928 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

Correspondence.

TOXIN-ANTITOXIN IMMUNIZATION.

SIR: I have read with interest your editorials and leading articles in connexion with diphtheria. I am venturing a few criticisms from a general practitioner's point of view of your leading article, "Toxin-Antitoxin Immunization," appearing in the journal of July 14.

You refer to Dr. W. H. Park's excellent results and comment on the fact that such excellent results have not been attained in some parts of the Continent of Europe.

Dr. Cumpston's evidence before the Bundaberg Commission *re* influence of immigration on diphtheria incidence, evidently impressed the members of the Commission. His belief is that immigration increases the incidence of diphtheria. If he is correct in this, may not the restriction of immigration which for some years has been law in the United States, have something to do with the diminished death rate in New York? Especially so, when previously diphtheria was prevalent and as you say "the immunizing effect of epidemics is well known and is sufficiently strong to maintain an immunity once this has been established."

Again, may not more widespread treatment with antitoxin in "clinical diphtheria" have some part in the lessened death rate?

Dr. Park's figures may be unchallenged, but that the results are wholly or largely due to active immunization is certainly not beyond challenge.

Osler in the eighth edition of "The Principles and Practice of Medicine," on page 70, ascribes the fall in mortality of diphtheria in Boston after the year 1895 to the fact that the infectious pavilion was opened in 1895. On page 69 he mentions that antitoxin was introduced in 1895 into Boston and yet he ascribed, on page 70, the fall in death rate wholly to the opening of the infectious pavilion.

May not Dr. Park's reason for the figures in New York be equally or more misleading?

I am glad to see you publish that "the British are opposed to the wholesale application of the measure, at all events until some of the debatable points have been settled."

Seeing that there are debatable points and that in antitoxin we have a sure early remedy and that active immunization is carried out on healthy children, it seems to me that your statements (i) "the medical profession should urge parents to submit their children to this procedure," (ii) "the risks are known and are avoidable," (iii) "the medical profession has the duty at this period of reassuring the public," are highly debatable.

The "Medical Annual," 1928, states that there is "the liability of toxin-antitoxin to cause hypersensitiveness. Cases which had been given toxin-antitoxin and subsequently received an injection of diphtheria or scarlet fever antitoxin developed necrosis at site of injection of serum."

How is this avoidable, especially as an immunized child may contract diphtheria?

As to duty, it is surely not our duty to advise a somewhat debatable and risky measure for administration to healthy persons, unless there is overwhelming proof of its efficacy, especially when there is a remedy for the disease we are endeavouring to control. As you say, "some authors have reported that more information is needed before a final decision can be given as to the nature and extent of the immunity conferred on susceptible children by toxin-antitoxin."

In your article on July 14 you also refer to your editorial of February 11, 1928.

On page 118, the second column, line 46, "Toxin-antitoxin . . ." to line 62: "It thus appears that complete neutralization with antitoxin of the toxin is essential for immunization purposes."

If you reread this portion of the article, I think you will find it difficult to follow, for the reasons below.

1. In your definition of the antitoxin unit, by not defining the term "neutralization" as prevention of death of animal in four days.

2. In your definition of L+. I take it that the word "minimum" should precede "amount" and "within four or five days" should follow "antitoxin."

3. Comments on difference between L_o and L+ are very vague.

4. How the sentence, quoted above, commencing "It thus . . ." is deduced from the remarks preceding it, is by no means apparent.

From what I can gather, the toxin-antitoxin of the Commonwealth Serum Laboratories has $^{6}/_{10}$ L+ and one unit of antitoxin is thus more than neutralized and has an excess of antitoxin.

I have been interested enough to consult Muir and Ritchie's "Manual of Bacteriology" and still cannot get your exact meaning. As the article was written, I take it, for the guidance of general practitioners, I am acquainting you of my difficulty in understanding portion of it.

This letter is written in no spirit of carping criticism, but in the search for guidance and to explain the hesitation that I feel in advising active immunization against diphtheria.

Yours, etc.,

"DUBIOUS."

[Our correspondent is quite justified in his expressions of doubt concerning the alleged protection of children against diphtheria by means of toxin-antitoxin injections. There is a great deal of evidence to show that as a rule children who have been exposed to infection after toxin-antixoin injection escape, while those not previously injected are liable to contract diphtheria. All the direct argument against this form of immunization was deliberately given in the leading article, in order that the claims of Dr. W. H. Park should not be accepted without reservation. While the influence on epidemic spread of an infective disease is materially affected by the introduction

into the community of fresh susceptibles, the reduction of deaths from diphtheria in New York cannot be explained in this way. This question has been studied with great care; it has been shown that in other cities in the United States the mortality has not decreased in the same period. In regard to the effect of antitoxin treatment on diphtheria incidence, it will be noted that the anticipated improvement has not taken place during the thirty years since the introduction of antitoxin. In spite of the admission that the wholesale application of toxin-antitoxin immunization has been opposed, at all events until some of the debatable points have been settled, practically all authorities advocate this measure "for certain child communities and for schools in time of epidemics."

"Dubious" asks how the risks are to be avoided. The accidents recorded have been traceable to the omission of antitoxin, to the incomplete neutralization of the toxin, either in the preparation or as a result of the dissociation of the mixture by the action of freezing, to hypersensibility and to contamination. There should be no difficulty in insuring against technical errors in the preparation of the mixture and medical practitioners have been warned of the danger of storing the bottles at very low temperatures. The danger of anaphylactic shock and of allergy is rather theoretical than practical. When a child has had a previous injection of serum it is advisable to desensitize it before a dangerous dose of serum is given at a subsequent date. Contamination can be avoided.

We regret that we did not explain clearly the significance of the difference between L_o and $L+$ when dealing with toxin. An example will perhaps be found useful. Ehrlich found that a certain toxin had a minimum lethal dose of 0·0025 cubic centimetre. This means that this quantity was just sufficient to kill a guinea pig weighing 250 grammes in from four to five days. The $L+$ dose was found to be 0·25 cubic centimetre. That is 0·25 cubic centimetre of toxin mixed with one unit of antitoxin sufficed to kill a guinea pig weighing 250 grammes within four or five days. The L_o dose was found to be 0·125 cubic centimetre. That is when 0·125 cubic centimetre of toxin was mixed with one unit of antitoxin no local or general reaction occurred in the guinea pig. Larger amounts always produced some reaction. It will be noted that the difference between the $L+$ and the L_o was equal to fifty minimum lethal doses. If toxin behaved like an ordinary chemical substance towards antitoxin, the difference would have been one minimum lethal dose. In view of this peculiar behaviour of toxin, emphasis should be laid on the necessity of complete neutralization for immunization purposes. Theoretical or calculated neutralization may yield a mixture with a danger excess of toxin. An excess of antitoxin is advisable, but is not essential. We must repeat that we hope that the disastrous accident at Bundaberg will not have the effect of restricting the use of this prophylactic measure in suitable circumstances.—EDITOR.]

DIATHERMY AND DEAFNESS.

SIR: Since my last communication I have been using a machine with much more rapid oscillation, 2,000,000 as against 650,000, and I have obtained better results in several cases that were standing still under treatment with the old machine. One case, sent to me by Dr. Eric Gutteridge, of definite old sclerosis showed no improvement.

A case of great interest was one in which the nasal mucosa was pale and slightly œdematous. Radical antrum was performed ten years ago on both sides for polypi and the mucosa of the left frontal sinus was removed about eight years ago. It was œdematous with here and there slight polypoidal formations. Since using diathermy the mucosa has become practically normal and the ear condition (C.C.M.E.) has improved in both sides.

From communications received I am led to believe that too strong a current has been used in some instances. Five hundred milliampères is my usual current and I have only had one case of slight giddiness and none of headache. If the patients are recumbent while receiving treatment, it is wise to keep them so for a few minutes after cessation of treatment, especially if over middle age.

The unit in use now is the Engeln Electric Company's Mobile model. It has eight-point Tungsten open spark gaps with a resonator of the Oudin Tesla pattern designed to deliver 2,000,000 frequency per second; it is also very suitable for use with auto-condensation table.

Yours, etc.,

W. KENT HUGHES.

Undated.

PROPHYLAXIS IN VENEREAL DISEASE.

SIR: I have received numerous inquiries from medical men regarding a prophylactic cream which I described in your journal of July 14.

This is obtainable from any wholesale druggist under the name of "Prophylactine." Detailed instructions for use are enclosed in each packet. The cream is dispensed in collapsible tubes and contains mercury oxycyanide (1 in 2,000), calomel (1 in 4) and thymol in an oleaginous base.

"Prophylactine" may be regarded as an efficient and reliable preventive of both gonorrhœa and syphilis when applied to the penis and *fossa navicularis* within two hours of exposure. This preparation may be used for *pediculosis pubis* and for healing excoriations on the genitals, but, of course, its use is contraindicated once the symptoms of either gonorrhœa or syphilis have developed.

"Prophylactine" has been adopted by the Public Health Clinic, 151, Elizabeth Street, Sydney, where it is available to the public on application.

This clinic has been established to assist in the prevention of venereal disease by providing free prophylactic facilities for those who have exposed themselves to the risk of infection, but have not employed measures of immediate self-disinfection. Preventive treatment is successful within forty-eight hours after exposure.

Yours, etc.,

R. V. STORER.

231, Macquarie Street.
July 30, 1928.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University of Sydney was held on Monday, July 2, 1928.

The following appointments were approved:

Mr. G. E. Phillips, M.Sc., as part-time Demonstrator in the Department of Physiology.

Dr. C. E. Winston and Dr. Eric McDonald as Honorary Demonstrators in the Department of Anatomy.

Dr. V. M. Trikojus as Lecturer and Demonstrator in the Department of Organic Chemistry.

Dr. Laurence Hughes as Tutor in Medicine at the Royal Prince Alfred Hospital during the absence of Dr. Clayton on sick leave.

Dr. H. S. Stacy as Lecturer in Clinical Surgery at Sydney Hospital.

Mr. J. Bannon, B.Sc., as temporary Radium Emanation Physicist to the Cancer Research Committee.

Dr. Maurice Susman as an Honorary Cancer Research Worker under the direction of the Cancer Research Committee.

The Walter and Eliza Hall Travelling Medical Research Fellowship was awarded to Dr. B. T. Mayes. Dr. Mayes during his course gained the John Harris and the Caird Scholarships and graduated in 1927 with first class honours and Professor Windeyer's prize in obstetrics. He proposes to carry out research in obstetrics at the Rotunda Hospital, Dublin, and other places abroad.

A bronze medal upon graduating Bachelor of Science in Domestic Science (B.Sc.Dom.) was awarded to Miss Doris Williams. She is the first student of the University to obtain this degree and in her three years' course at the

University passed in Chemistry each year with high distinction, in Geology I and Physiology I with distinction, and in Zoology I and Physics I with credit. In the Technical College portion of her course Miss Williams was awarded "A" passes (equivalent to first class honours) in Advanced Cookery, Sanitation, Medical Hygiene and the Chemistry of Bread Making.

The Vice-Chancellor (Professor R. S. Wallace), the Chairman of the Professorial Board (Professor J. B. Peden), the Dean of the Faculty of Engineering (Professor Sir Henry Barraclough) and the Registrar (Mr. W. A. Selle) were appointed as delegates of the University to the Conference of Australian Universities to open in Melbourne on August 20 next.

Books Received.

THE SPRINGS OF LAUGHTER, by C. W. Kimmins, M.A., D.Sc.; 1928. London: Methuen and Company, Limited. Post 8vo., pp. 185. Price: 6s. net.

OUTLINES OF DENTAL SCIENCE: VOLUME XII: ORTHODONTICS, by A. G. Wilson; 1928. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 168, with illustrations. Price: 8s. 6d. net.

THE ALIEN MENACE: A STATEMENT OF THE CASE, by Lieutenant-Colonel A. H. Lane; 1928. London: H. A. King and Sons, Limited. Demy 8vo., pp. 92. Price: 2s. 6d. net.

UNDERSTANDING HUMAN NATURE, by Alfred Adler, Translated by Walter Béran Wolfe; 1928. London: George Allen and Unwin, Limited. Post 8vo., pp. 300. Price: 12s. 6d. net.

Diary for the Month.

AUG. 14.—Tasmanian Branch, B.M.A.: Branch.
AUG. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
AUG. 15.—Western Australian Branch, B.M.A.: Branch.
AUG. 15.—Central Northern Medical Association, New South Wales.
AUG. 17.—Eastern District Medical Association, New South Wales.
AUG. 20.—New South Wales Branch, B.M.A.: Organization and Science Committee.
AUG. 21.—Tasmanian Branch, B.M.A.: Council.
AUG. 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUG. 22.—Victorian Branch, B.M.A.: Council.
AUG. 24.—Queensland Branch, B.M.A.: Council.
AUG. 28.—Illawarra Suburbs Medical Association, New South Wales.
AUG. 28.—New South Wales Branch, B.M.A.: Medical Politics Committee.
AUG. 30.—New South Wales Branch, B.M.A.: Branch.
AUG. 30.—South Australian Branch, B.M.A.: Branch.

Medical Appointments.

Dr. Henry Vicars Gillies (B.M.A.) has been appointed Government Medical Officer at Emerald, Queensland.

* * * *

Dr. Kingsley Dixon Hudson (B.M.A.) has been appointed Government Medical Officer at Bungendore, New South Wales.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi.

LAUNCESTON PUBLIC HOSPITAL: Junior Resident Medical Officer (Male).

THE ADELAIDE CHILDREN'S HOSPITAL, INCORPORATED: Resident Medical Officer.

THE PUBLIC SERVICE BOARD, NEW SOUTH WALES: Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. Marrickville United Friendly Societies' Dispensary. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to position at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor." THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.